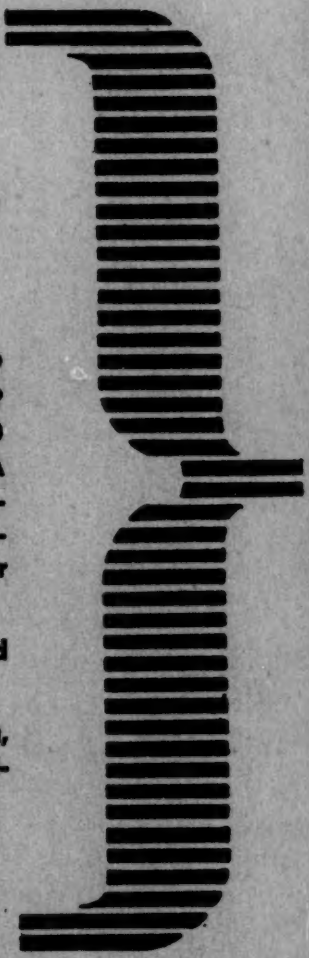
ETC.

A REVIEW OF GENERAL SEMANTICS



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NEWS AND MISCELLANY

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VOL. III, No. 2 WINTER, 1946

ETC.:

A REVIEW OF GENERAL SEMANTICS

PROPOSALS FOR THE INTERNATIONAL CONTROL OF ATOMIC ENERGY*

MELVIN FREEDMAN

THERE IS, in nature, a kind of inevitability, an apparent ordered sequence of events which man has, through application of the physical and biological sciences, slowly learned to understand, and even to predict. Can the same be said of the science of society? Can inter-human relationships be treated on the same objective level as are the problems of mass and energy? Most scientists that I know have in the past entertained the hope that some day social problems could be so handled; that, if they are given *the facts* relevant to any given social problem, social scientists could chart a sane and proper course for the social organism. And here one sees that a new factor enters into social thinking, one to which the scientist working in nature's laboratory gives no heed. That factor is a goal, an ideal, a moral principle, a set of standards, a model upon which one decides to base one's judgments as to what is good or bad for society. We have that ideal; a democratic world, existing in freedom and in peace, able to develop its possibilities for a full and rich life. And now those possibilities are multiplied a thousandfold with this new source of energy, atomic power, within our reach. But do we have the facts? I think that, for the solution to this most significant and most pressing of all of man's problems, the social control of the atomic bomb and of atomic energy, we scientists have the facts, the knowledge without which wise planning and sane action are impossible. And this I wish to emphasize; these facts are by no means the abstract, remote concepts which are usually associated in the popular mind with the long-haired theorist. The ideas are simple, easy to grasp and of manifest importance, and every citizen can judge of them for himself, and use them to guide his own thinking on these problems. I am convinced that if this body of knowledge is widely understood, by the common man as well as

* Lecture to the Society for General Semantics, November 16, 1945, at Roosevelt College, Chicago. Melvin Freedman (Ph.D., Chicago) is a member of the atomic bomb project at the University of Chicago.

by the member of Congress, we need have much less concern about the impact on our society of this momentous discovery.

Let's first begin by trying to understand not how the bomb works or how it is made, but what it does. We have all seen the stories and maps depicting the devastation produced in Hiroshima and in Nagasaki by just one bomb on each city. But none of you, unfortunately, has had the privilege which I recently enjoyed of listening to one of the scientists on our Project whose job it was to go to Hiroshima and Nagasaki and to survey the damage there. His description of the wilderness of Hiroshima that was just a few weeks before a city of 350,000, contrasted and compared with the almost completely burned out hulls of the 50-odd large Japanese cities he visited, cities which had been attacked again and again by thousands of B-29's with tens of thousands of tons of fire and high explosive bombs, showed the enormous power of this first baby bomb of the atomic age. Here was a city, Hiroshima, new and of relatively modern construction, as Japanese cities go, which in one flaming instant was transformed into a wasteland, a funeral pyre for tens of thousands. Those in the streets were carbonized as is a moth in a flame; those in the steel and concrete structures were crushed by the explosive wave, or burned to death.

The power of recovery was eliminated: 1200 out of 1500 physicians were killed instantaneously. Nothing served as a defense except space; those who were far enough away survived; those closer never had a chance to dedicate their lives to the glory of the Emperor. And this was the bomb which was made 'obsolete' three days later by the explosion of the second atom bomb on Nagasaki.

Here we may note that in the 1000-odd year history of gunpowder, dating from the discovery by Chinese monks in the tenth century of ordinary black powder to the powerful explosive TNT, the efficiency was increased only 2.7 times, while the atom bomb is 5,000,000 times more powerful than TNT. And we may soon expect the development of bombs 100-1000 times more powerful. Professor Oliphant has said that by using radioactive gases which appear as a by-product in bomb manufacture, one could kill every living being over 10,000 square miles. What must one then say of the usefulness of those toys of the pre-atomic age, the battle-fleet, the 'trained' army of millions with their tanks, flame-throwers and 'heavy' artillery? Can one then rely on our far-flung defenses, our air fleet, our 'watch-dogs of the sea,' to turn back an atomic bomb attack? Well, let's see what we can say about that. Incidentally, if we pay much attention to such self-appointed experts on atom bombs as Mr. de Seversky, or Admiral Halsey, each with his special axe to grind, we shall wishfully think ourselves into an early grave, a mass grave.

II

Let's try to picture the war of the future in terms of this weapon. Certainly, no nation will ever start a war without having atomic bombs, for it can never be certain that the victims of its aggression may not be armed with them, and no military mind, even the mind of a madman like Hitler, will start a war it thinks it does not have some chance of winning. We scientists have dubbed this new kind of warfare the 'One Minute War.'

It goes like this. One night, in some foreign country with which, say, we have been having some painful discussions concerning the 'democratization' of the natives of Afghanistan, a man presses a

button. Off flash rockets, projectiles like the German V-2, each carrying an atomic bomb in the warhead, off into the stratosphere at a speed of 3500 miles an hour. This is five times the speed of sound and twice as fast as a high velocity shell. These missiles range the Atlantic, as present day German rockets can, and some two or three hundred of them come straight down at our cities and towns, say one for a town like Cincinnati and 3 or 4 for Chicago.

We have no warning of their coming, no way to tell from whence they come since they fall straight from the stratosphere, and no chance to destroy or detonate them far from their targets anyway. We cannot hit them with shells or rockets, and to hit them and perhaps detonate them, say, a mile above ground would not do us any good anyway, for this is just the way that the Hiroshima and Nagasaki bombs were exploded, far above ground.

We cannot, as Larry Crosby and the U. S. Navy have claimed, detonate the bombs with radar or any such device. Despite the oft-quoted adage that 'to every offensive weapon there is, sooner or later, a defense found,' which, incidentally, is certainly not true of such weapons as the massed fleet of heavy bombers, the scientists on the Project agree that *there is no possibility of a defense against the bomb*. So, our 92 cities of over 100,000 population each, 47,000,000 people, 85% of our industry, and practically all of our transportation centers are wiped out in the first few minutes of the war. Next day, we mobilize our pop-gun army.

Well, you might say, 'That's carrying things a little too far. We haven't yet seen transatlantic rockets. If the bombs are carried in planes, as seems likely, we could shoot them down very effectively, especially with radar-controlled guns and our shells equipped with the new proximity fuses.' To this we answer, 'True, planes may be used to carry the bombs, though accurately directed long-range rockets are an easy development directly of the V-2 rocket, and in fact the Germans were preparing to bomb us with such rockets. And we probably can greatly improve anti-aircraft defenses. But these defenses would have to be 100% perfect at the first surprise attack, for if even 1% of the atomic bombs get through, well, no more defense! This is perhaps a lot to expect of any defense, especially as it will have no chance to recoup its forces and to invent a method to meet the new attacking techniques.' For example, surprise attacks may be made with ordinary commercial transport planes on an ostensibly peaceful mission.

III

Two other quaint ideas ought to be considered while we are thinking about defending ourselves against the atomic bombs. These fiendish ideas are the kind of thing one expects from a writer of science-fiction stories, but after all, *Amazing Stories* has been talking about atomic power and atomic bombs for twenty years, so maybe that kind of imagination is useful. Here's the picture. Some 50-odd 'commercial travelers,' as the Nazis used to say, arrive in several of our cities. In their suitcases each carries the essential material of an atomic bomb, which, as the Smyth Report (the government's release on the history and technology of the Atom Bomb Project) says, 'weighs between 4 pounds and 200 pounds.' Each rents a room in a boarding house, assembles the bomb, and sets the detonating device in action. He secretes the gadget in a closet, a basement, in an empty lot, perhaps he drops it in the river or checks it at a railroad terminal, and

then he leaves the city.

Sometime later, perhaps during some international crisis, the atomic mine is set off, either by an internal timing device, or by radar, or by any of a dozen odd methods. How in the world can one defend oneself against such mines? They are small, inconspicuous, ordinary; they emit no signals or otherwise disclose their peculiar nature.

I believe that it is probable that if and when many nations have bombs, all cities will be so mined by many possible enemy countries. And here we must recognize, incidentally, that such 'preventive mining,' as we may call it, is much more easily carried out by countries living in a fascistic or dictatorial social system than by countries such as the U. S. with a tradition of non-aggression, who lack a centralized Gestapo-like organization. Thus, we are left relatively at a disadvantage in such a competition.

The second of these principles of the new warfare constitutes an even greater departure from tradition. An example is the following: We have, say, been in some discussions with Russia. One night New York disappears, atom-mined off the map. No bomb pieces are found among the rubble marked 'Made in Japan' or 'Made in Germany.' No one declares war on us. All nations send their condolences.

Whom we do attack? Well, we make up our minds and a couple of atom bombs descend on Moscow, and the holocaust is on. But later, it turns out that it wasn't Russia at all, it was Argentina, who then steps in and takes over. We might call this the 'Anonymous War.' Again, we have something new which simply does not fit into our previous pattern of thinking.

From this type of discussion we can discern two new facts, with which over 95% of the scientists on the entire atom bomb project agree. These are: (1) The atomic bomb and its vastly improved successors are much too destructive to consider in the traditional patterns of social and military thinking; and (2) Scientists agree that it is entirely unreasonable to expect an effective defense against these bombs.

IV

This last point is subject to one single objection; that is, a defense against the atomic bomb, equally with the defense against a TNT bomb, consists in not being where it hits. This type of defense is really the only effective unilateral action which a single country can undertake to minimize the effect of an atomic bomb attack. It is evident that atomic bombs are offensive weapons directed primarily at population and industrial centers, and their effectiveness increases as the population, industry, and transportation are more centralized. Such extreme centralization is characteristic of the United States; it is not the case to nearly the same extent, for example, in Russia. So it has been proposed that an immediate decentralization of all our large cities be undertaken; that no town shall have more than 100,000 population; that we shall spread our industry uniformly over the surface of the available land area of the United States, with the view of making more costly any attack on us.

Such an undertaking is by no means an impossible endeavor. A sociologist to whom I have spoken says it might cost $250 billion, exclusive of the cost of the land involved, or of the cost of dispersing our railroad and highway systems. And, conceivably, it might be done in ten years, though what this would mean to our economy, our civil liberties, our whole cultural, social and governmental system

can be imagined. *But,* it really wouldn't help anyway, for then our urban, industrial population of about 70,000,000 would live in some 700 cities, and 700 atomic bombs are certainly within the productive capabilities of several other nations, and probably within some such time as 10 years. Professor Urey has said some nations may be able to make 10,000 bombs.

No, there is no getting away from the atomic bomb. We do not attempt to make exaggerated claims that atomic bombs will kill everyone and wipe out civilization. To quote Dr. Einstein's statement of the other day, 'Perhaps two thirds of the people of the earth might be killed, but enough men capable of thinking, and enough books, would be left to start again, and civilization could be restored.'

V

I would like to digress for a few minutes to recite a few facts of recent scientific history. In January, 1939, the phenomenon of nuclear fission was discovered by Hahn and Strassmann in Berlin. This was by no means the first evidence that vast quantities of energy could be obtained from the breakdown of the nuclei of atoms; indeed, early in the century it was recognized that the spontaneous breakdown of the nuclei of certain heavy atoms, such as radium, was accompanied by the release of large amounts of energy. We call this natural process radioactivity. And when, in 1919, Lord Rutherford first succeeded in splitting the nuclei of atoms artificially, speculation became common as to the possibility of obtaining useful amounts of energy from nuclear processes. But after the announcement of the discovery of the fission process in 1939, it was recognized by scientists everywhere that we had for the first time a practical possibility of achieving this long-sought-for goal.

A glance through the newspapers of the early months of 1939 will reveal an enormous interest on the part of scientists and many lay people in this potentiality, and there was much public discussion of atomic energy plants and vehicles. Scientists were aware of further implications in the discovery, and late that year a group of them, all, incidentally, of foreign birth, assembled together, and agreed that, in the interests of keeping further developments from the Axis countries they would urge nuclear scientists in the Allied countries to suspend publication of their results. This was done. The same group approached President Roosevelt, explained to him the possibility that this new method of releasing nuclear energy could be made to work explosively and thus serve as a powerful new weapon, and succeeded in winning the President's approval for the necessary research work. This was the effective start of the atomic bomb project, and its impetus came almost solely through the efforts of foreign-born scientists.

Well, we worked for about four years on a large-scale effort, in constant fear that the Nazis would beat us to it, and on August 6, 1945, we had an unveiling of our new model before the public. Right then, scientists the world over knew that it could be done; that it was indeed possible to get just that fortunate combination of the natural physical properties of the materials which is required to make a nuclear explosion. Up to this time that was the only real question, that could only be answered by such a large-scale and costly endeavor as we had engaged in. And now they knew. Now they could certainly be expected to get right to work to duplicate our effort, and there was little doubt that they would be successful.

Many countries certainly have the scientific talent and the industrial capacity to do the job, and, considering the high premium attendant upon success, all governments certainly had the will. I think that we learned from this last war that lack of money is no deterrent to a determined nation. So I believe that if one had polled scientific opinion just after the bomb was dropped, the consensus would have been that many other countries would be able to develop the bomb independently, and in perhaps 5 to 10 years.

But this is no longer our opinion. For, two weeks after the bomb was dropped, the War Department released the Smyth Report giving an amazingly complete and detailed picture of the development of the Project, and outlining in considerable detail the very many modes of attack upon the problem that were tried, and indicating which of these were carried to a mass production basis. Incidentally, no method for the production of U-235 or of plutonium ever failed; several, though successful on the pilot-plant scale, had to be dropped simply for lack of manpower in order to concentrate on others that seemed more promising. In short, the Smyth Report brings any competent nuclear physicist up to where we were at the end of 1942, or beyond. Now other countries no longer need geniuses like Fermi or Szilard to make atomic bombs. They just need a group of trained, reasonably able scientists, time, and materials.

VI

Some public discussion has been heard recently to the effect that, even though other countries had the scientific talent to duplicate or even better our efforts, they lacked this mysterious something called industrial 'know-how.' This is as ridiculous as it is misleading. I need only mention the rocket plane, the rocket, the flame-thrower, the submarine that can run indefinitely under water, the heavy tank, the famed Russian artillery; synthetic rubber, gasoline from coal, yes, and the Japanese Zero, to name but a few of the many military devices which were developed and mass produced in other countries before we copied and improved on them.

Moreover, it is a mistake to assume that a large industrial potential is necessary to make atomic bombs. We undertook the parallel large scale development of three methods of manufacture because we could not anticipate which might fail. None failed, and now other countries need use only one of these methods, or perhaps devise a still better one. And remember, it was the scientists and not the industrialists who developed the manufacturing processes. Now, the opinion of over 95% of the Project scientists is that many other countries will have atomic bombs in usable quantities in from 2 to 5 years. If we were to completely release all the remaining technical information, which consists only of engineering details and blueprints for production, we would save other countries perhaps six months of effort. This is why talk of our 'keeping the secret' of the bomb is dangerous nonsense, for it lulls us into a false sense of security, from which we may be awakened by the roar of bursting bombs. There is no sense in playing the game of international politics as though you had an ace up your sleeve, only to have it turn out to be a joker. Any effort to keep the secret has also the dangerous consequence that it can be made only by imposing secrecy restrictions on our own scientists, and so sterilizing the only means by which science can develop in our own country, that is, by free and open exchange of scientific information.

We must also recognize that Great Britain has the complete knowledge of the bomb and its manufacture, for we collaborated in its development. In any case, in three years the United States will have to act as if other countries had bombs, whether or not they announce that they do. If they say they do, we can't be sure whether they are bluffing; if they don't say, we have to assume the worst. We may as well anticipate that time right now, and decide either how we mean to behave then, or how to avert this dangerous situation. Thus we have our third fact: *there is no secret of the atomic bomb to keep.* It has been said that an attempt on our part to keep the secret will result in an attitude of fear and distrust among other nations, and that this would spur them to greater efforts to make the bomb themselves. I say this is nonsense, for they couldn't possibly be working harder on the problem than they are. *Right now we are in the armament race we all dread so much, and we may as well admit it.*

If we cannot keep the bomb a secret, might we not attain security by preventing others from manufacturing the bomb? If the necessary raw material, uranium, were available only to us, this might be practicable, since we would merely have to restrict its export. The rest of the world might not like to trust our good faith with this dangerous toy, but there would be little they could or would do about it, so peace might be guaranteed. The fact is, however, that the United States is one of the have-not nations in this commodity. Deposits are scattered worldwide, in Canada, the Belgian Congo, Czechoslovakia, Russia, and elsewhere. Thus, we would have recourse only to war, and soon, to prevent other countries from making bombs. We may summarily dismiss this proposal as impossible to fulfill and as entirely contrary to our democratic, non-aggressive tradition. It is certainly a case of jumping over the cliff because one cannot stand the fear of high places, and would commit us to just the catastrophe the world is trying to avoid.

Many people believe we can maintain our present transitory state of relative security by attempting to keep the lead, both in the production of bombs and in research devoted to their improvement. Scientists do not argue against this proposal, but we do point out that it is problematical as to whether a high degree of preparedness can really offer us any protection. Fundamentally, the proposition is that if we are evidently and openly armed to a degree sufficient to retaliate to any aggression against us, that potential aggressors will be deterred from an attack. This probably is *not true,* since once a nation has the requisite number of bombs to destroy our cities, more are of little avail, to him or to us. The advantage is so evidently with the first attacker that the war may be over before we have a chance to strike back, and no retaliation will bring back our 50,000,000 dead, or our industry. Here again our policy of non-aggression would work against us, for we are not likely to be the first to attack.

What the constant threat of imminent destruction would do to the psychology of our city residents, especially during any slight flareup on the international scene, one may well imagine. We may well be converted into little Hitlers. And when we consider the possibility of the 'Anonymous War,' it is apparent that we might be the best armed nation in the world, standing amidst our ruins not knowing at whom to strike. No, we cannot rely on keeping others from having atomic bombs or on having lots of very good ones ourselves.

VII

During the last several years of war and of pre-war hysteria, there was a great deal of concern lest the use of poison gas become common. Towards the end of the war this fear largely faded, especially when we were reassured that we had vast stocks of gas and that the Germans, fearful of retaliation, probably would not use this weapon. This explanation completely falsifies the issue. The fact is that poison gas was not used, independent of any threat of retaliation, because it simply is not an effective weapon. Pound for pound, a plane carries much more devastation in the form of fire and high explosive bombs than in the form of gas bombs. Poison gas is not a decisive weapon. The atomic bomb is. Lest we get to feeling too superior, we should note that this is why *we* did not use gas, and not because we are so moral. We did use the atomic bomb.

What I want particularly to point out is that almost no one relied on the fact that Germany was a signatory to the Geneva Conventions of War which outlawed the use of such weapons, for it was evident, as it should always be, that in a world where human frailties prevail, we may at any time have to face a new Hitler, a new disrespect for human rights and dignities. So when I say, and here I am going to come to the point; when I say that scientists believe that *international control* of atomic power is our only realistic means of preventing another, and last, war, I do *not* mean that the safety, no, the existence of the world, can be entrusted to what at any time may be called a 'scrap of paper.' No one can, any longer, seriously believe in the moral power of *international agreements*. I do mean that almost all the scientists on the atomic bomb projects believe that we can only hope for safety, in view of the facts about which I have spoken, if some sort of international controlling system *prevents* any nation from ever having atomic bombs. And we have some pretty definite ideas, based on a rather intimate association with the way science works, as to what the control ought to do. We think that a control embodying certain positive proposals which I will submit to you here, ought to be established. One more thing we urge for consideration, and that is this: While we are, as I hope, the only nation with atomic bombs, this problem may be soluble. But as soon as others have them, getting a sensible solution will obviously be much more difficult. So, time is of the essence.

Before we discuss the nature of these international controls, let's be clear on one thing. The atomic bomb does not prevent war. It may even drive peoples into wars which would not occur except under its threat. So the bomb does not contribute to solving the age-old problem of war, it merely makes the solution more urgent. Thus, fundamentally, we can only achieve permanent peace by destroying the causes of war; the racial antagonisms; the political differences; the economic dislocations; the religious animosities. In my mind this means that we must establish a world government; that the foundations for human relationships must be based on a vigorous educational campaign designed to eliminate baseless differences in social thinking; that we must learn to reconcile differences in our political and economic systems. The question we must answer is whether such a world government can be founded in time, and if not, then what must we do? We have not had much hope that this much could be achieved within the next few years, and so we hope that the adoption of a system of international control may tide us over until the necessary, say,

fifty years have passed during which we must work through every educational and propaganda means at our command to foster the idea of a world community. The horrible proverb that 'Human nature makes wars inevitable, so there will always be wars' can be driven from men's minds. Meanwhile, we must keep their bodies in one piece.

VIII

Let me now enumerate and discuss briefly the character of the international controls. This list is certainly not exhaustive; it's merely a first step.

(1) The international controlling authority (I.C.A.) shall have plenary control over all sources of the necessary raw materials, uranium and the like, wherever in the world they may be found. If the constituent nations are willing to forego, at least for a while, the possibility of the peace-time development of commercial atomic power plants, and this would in reality be only a very small sacrifice, this sort of control would, in itself, efficiently prevent the amassing of amounts of materials sufficient to make bombs. The controlling authority would allocate to the nations small amounts of uranium for research and medical purposes. If, however, the nations were unwilling to make this sacrifice, obviously many other stringent controls are needed.

(2) The I.C.A. shall have a corps of scientifically trained agents, who shall have completely unlimited right of inspection in any laboratory, building, mine or factory anywhere on earth, in order to see that the rules of the commission are being observed, and that no secret attempt to develop or manufacture bombs is being made. Obviously, this means that the United States will have to turn over to the I.C.A. any technical information we have or may acquire on the bomb, on condition that other nations do likewise.

(3) Another control measure which will tend to warn the world of an attempt to violate the controls is the following. Some scientists consider that this may be the most effective type of control that we can soon establish. Let's say a scientist in country X observes a secret laboratory being set up to do atom bomb research. He ought to be able to go to the I.C.A. and say, 'I renounce X citizenship; I assume United Nations world citizenship, and I report to you a violation of the commission's rules in my native country X.' In other words, scientists in the field of nuclear physics ought to be granted a sort of special immunity from the jurisdiction of the espionage laws of their respective countries. True enough, most German scientists behaved like Nazis, but if only one had gotten out and reported what he knew, we would have been warned in time. Moreover, there is an enormous tradition of international coöperation between scientists, and we should use this to advantage.

(4) The I.C.A. should establish a laboratory, staffed by the best scientists in this field, to undertake research in the improvement of atomic bombs. This is to ensure that the commission could keep up with any secret developments in any single nation, made in spite of all inspection. No nation in possession of a more destructive innovation would be tempted to take advantage of its supposed temporary lead.

(5) All bombs now in the possession of any nation must be destroyed.

(6) A check can be kept on all who receive a scientific training, to see that they do not vanish into secret laboratories.

(7) This last proposal will undoubtedly be the most debatable. It says that the I.C.A. shall have at their command an international police force ready to put

down any attempt at aggression. Perhaps this international army should be armed with atomic bombs; perhaps this is unnecessary, since it may be sufficient to simply arrest the officials of any government violating the control laws. But, whatever the decision in this regard, the people of the earth must recognize that any attempt, however slight, to evade inspection or otherwise demonstrate a willingness to compromise the law must be treated as an act of aggression, for this could be its only purpose. Even if the I.C.A. has no means of implementing its authority, the disclosure of a violation would at lease serve as a warning to the other nations, who could prepare for the coming onslaught; that is, this would prevent the possibility of an armament race carried out in *secret*.

Certainly, these proposals cannot guarantee peace, but they can, with a fair degree of certainty, make it very difficult for a potential aggressor to secretly arm. Obviously, the carrying out of these proposals would interfere to an unprecedented degree with the national sovereignty of all nations, and with many of our most cherished ideals and prejudices. But as Dr. A. H. Compton said, 'We are going to have a world government one way or another. The question is whether we get it by free choice or by the imposition of the domination of the victor in the next war.'

The problems we face are difficult, but not impossible. Instead of talking about 'sharing the secret' we should be more accurate and talk of 'sharing the headache.'

To burn always with this hard, gemlike flame, to maintain this ecstasy, is success in life. In a sense it might even be said that our failure is to form habits: for, after all, habit is relative to a stereotyped world, and meantime it is only the roughness of the eye that makes any two persons, things, situations, seem alike. While all melts under our feet, we may well catch at any exquisite passion, or any contribution to knowledge that seems by a lifted horizon to set the spirit free for a moment, or any stirring of the senses, strange dyes, strange colors, and curious odors, or work of the artist's hands, or the face of one's friend. Not to discriminate every moment some passionate attitude in those about us, and in the brilliancy of their gifts some tragic dividing of forces on their ways, is, on this short day of frost and sun, to sleep before evening.

WALTER PATER, *The Renaissance*

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If . . . there are three persons engaged in some discussion which involves the word 'truth,' let one designate his meaning as $truth_1$ the second his different meaning as $truth_2$ and the third his third meaning as $truth_3$. Then, whatever the question under discussion may have been, it may be raised first about $truth_1$, second about $truth_2$, and third about $truth_3$, and in this way verbal disputes may be avoided.

JAMES MACKAYE, *The Logic of Language*

THE FIGURE IN FILM

ADRIAN YOUNG *

HE'S LIKE a steam engine in trousers. This was the simile of Sydney Smith for Daniel Webster. Another figure of speech is favored by Dr. Gamble. On one occasion Fibber McGee had been plucking disturbing sounds from his mandolin. You could rope a heifer, the doctor said, with the slack in McGee's E-string. This was hyperbole. 'Gold . . . can pocket States, can fetch and carry Kings.' Pope spoke here in metonymies. When Jacques cried 'All the world's a stage,' it was the first line of a long-tailed metaphor.

An image often expresses feelings lost in direct statement. It expresses them concisely. It expresses something too of the writer's experience, for the life and the times of Pope or Shakespeare, of comedian or polemicist, speak in his images.

A film is made of sounds and images; a book is made of words converted into sounds and images—as far as he is capable—by the reader. It should then be simple to turn a bookly figure to a filmic one. At a point in Goofy's adventures, the 'curtain of night' suddenly drops as though from a proscenium, and begins glittering with stars (*Saludos Amigos:* Walt Disney). 'A pretty face comes your way,' says the owl in *Bambi* (Walt Disney and David D. Hand). 'Suddenly your head is in a whirl.' (His head spins top-like.) 'You are knocked for a loop.' (He falls backward, circling the branch he is perched on till he is again upright.) 'You lose your head.' (His head sinks down into his body feathers.) Such translations are mostly jocular, seldom deep, and like those between language and language, rarely happy.

In film, figures are not aroused at one remove in the vague fancy of the reader. They are distinctly seen shapes on a plane surface. And when two things are compared in film, it is often by having them assume the same pattern, still or moving. In *The Thirty-nine Steps* Hannay is away on the train for Scotland. Cut to the upper two-thirds of a charwoman. She stares. She screams. Cut to the upper two-thirds of a railway engine, bursting out of a tunnel, whistle screaming in the same pitch as the woman. The woman and the engine were much the same in size and place on the screen, and each was roughly a large oval topped by a smaller. It was clear that while Hannay was on the train, the woman had entered his flat and found the corpse. More than idle wit, the simile was useful. The inserted shot of the woman broke the continuity of the journey; but the carryover of pattern from woman to engine sped the audience back to the train, hardly aware they had left it (Alfred Hitchcock).

Equally smooth but a commentary of greater depth is in *South Riding* (Victor Saville). A sequence ends on a gossiping cluster of old men's heads. The next begins with bleating sheep huddled in a pen. Roughly the heads of sheep and

* Pseudonym of a Canadian writer, author of the article in our last issue, 'How Sane is Sane?'

men were the same size on the screen, hinting the speech of both equally empty.

Variations of Simile

Not always two things are compared in a simile; it may be the same thing in different functions. Laurel and Hardy create a simile, pulling the spokes out of a ship's wheel and using them as clubs. A spoke and a club are the same in shape and substance; the simile lies in discovering this when one is used as the other (*Jitterbugs:* Mal St. Clair). Often a difference in substance is ignored, and a semblance alone is made the basis of the simile. A slice of peach and a cherry are the final touch to a serving of cement from a mixer, drawing attention to a similar look of a dish of ice cream and a barrow of cement (*Rhapsody in Rivets:* Leon Schlesinger and Isadore Freleng). Starving men, stewing a boot, sampling its flavor, daintily twirling spaghetti laces, chewing them with grimaces of gusto, didn't dare admit the difference in substance but strove desperately to create a likeness in appearance (*The Gold Rush:* Charles Chaplin).

But the surprise of a simile may often lie more in difference than in likeness. A straight line we take for a pencil of light may be sounded like a fiddle string. Something silent and intangible is in a moment solid and audible: the line looks the same but it has suffered a sudden change. The plucking of moonbeams to the pacing of a bass viol, and a cobweb to the rippling of a plucked harp, are similes like this (*The Boogie-Woogie Man Will Get You:* Walter Lantz and James Culhane); and Vulcan plugging his ears with a pinch of cloud (*Trombone Trouble:* Walt Disney).

Simile suggests a likeness in some respects: the metaphor demands an identity in all respects. Since no two things are ever identical, this is an overstatement. It is as if one should say 'The points in which these things differ are for my purpose of little importance, and I shall act as if they didn't exist.' But since differences are often ignored in the simile, the distinction between simile and metaphor is one only of degree. When the Little Fellow's foot scratches back 'like a hen's,' we have simile. Earlier in the same film (*The Gold Rush:* Charles Chaplin), when Big Jim is delirious with hunger, a man-size chicken replaces the Little Fellow on the screen. For Jim at that moment, the sole function of any living thing was to be eaten. This equivalence of chicken and man is metaphor.

Simile and hyperbole too differ in degree. In hyperbole the things compared are disproportionate. In *Snow White and the Seven Dwarfs* (Walt Disney and David D. Hand) the door of a room opens and closes in time to the breathing of the occupant. The lungs are a kind of pump, though the suction of the pump that would move the door of a room is tremendously beyond them; and the two pumps are here implicitly likened. Bugs Bunny leaps in the air, comes down spiralling rapidly like a drill, swiftly burrows and vanishes (*The Hare-Brained Hypnotist:* Leon Schlesinger and Isadore Freleng). When Laurel's emotions dominate him, so great is the upward lift of his hair that his hat shoots upward out of the frame (*Jitterbugs:* Mal St. Clair).

These depict a considerable departure from the probable. More serious commentary asks a greater subtlety. When almost Mayor, McGinty buys a vast house. Through the balcony windows, he and his wife are tiny figures, entering double doors to the long dark hall of an empty house; and when at the scene's end he runs back the distance from window to doors, it would hardly have taken him

longer to run the block (*The Great McGinty:* Preston Sturges).

When a thing is pictured as a person, it is the simile known as prosopopeia. The locomotive in *Dumbo* (Walt Disney and Ben Sharpsteen) had eyes, piston chambers that thrust like feet in pulling, and a mouth and voice that cried 'All aboard.' A building hoist falling at breakneck speed politely moves across to the next well to avoid someone, and returns when it has passed him: steel and wood for a moment show human mobility and judgment (*Rhapsody in Rivets:* Leon Schlesinger and Isadore Freleng). Even a line can be so gifted, for what more is the sound track in *Fantasia* (Walt Disney)? When Mr. Taylor coaxes it to the screen, it bellies in, bashfully clinging to the top and bottom of the frame. When it records the last note of the trumpet, it flushes the screen with effort. (The frequent changing of the ground color greatly contributes to the animation of the line.) And when it is given leave to go, something in its curves (though it is merely a line) suggests a person leaping in the air and making a joyous bolt off to the left. An inner state is treated as a person in *Flesh and Fantasy* (Julien Duvivier). Marshall Tyler has been told by a palmist he will kill someone. There is a tension between the man he has been and a new will within him that incites to murder. His other possible self appears as a second image of his face that argues with him. He is nagged by his reflection in his glasses, beset by himself in shop windows, talked at from the polished surface of a table, questioned by his shadow. The second image —though it comes and goes when he does —gestures, talks, and laughs independently: it represents on the screen as a visible person a level of satisfaction at variance with his normal self.

Metonymy and Synecdoche

One of the most subtle figures in film is metonymy (putting a thing, for example, for the person it belongs to), and the special form of it, where the part is put for the whole, synecdoche. Early in a film we are made to understand that a certain man is the owner of a chiming watch. Later we know he is near, hearing the chime (*The Man Who Knew Too Much:* Alfred Hitchcock). This is metonymy. There is an affair of love between a wife and an actor. The husband is aware of it. All three are in the husband's house, in the gunroom. He is drunk. He is holding his favorite rifle and it is loaded. The actor knows what the situation is. The wife knows too, but, shallow in feeling, cannot settle which man she desires, and is uneasy and fearful. Then the hands in closeup: hers at her waist, wringing; her husband's, patting the rifle barrel; the actor's, moving up and down his lapel. Then in a longer shot the group of three, matching loaded words. Then the fingers of the wife, taut and still; the husband's fingers as they stray closer to the trigger; and the actor's fingers still moving up and down his lapel. This is synecdoche. As in the simile, something about a person is told by means of a thing (in this case a part or possession of the person).

Subtler, more allusive, modes of expression are effective only in a limited cultural area; they are effective only when knowledge of the relation on which the figure is based can be assumed in the audience. In *The Long Voyage Home* (John Ford) all we see of an attack is a train of bullet holes across a ship's hatch; and all we hear is a machine gun and the engine of a plane. Death by bullet and plane, though a development of European culture, is familiar enough throughout the world for this metonymy

to be widely understood. When *Tennessee Johnson* is being sworn in as Vice-President, the camera pans across the seated crowd, resting at last on a huge top hat, and the tip of a beard. That these were Lincoln, few beyond the coasts of America would know (William Dieterle).

Yet without significant things, there would be levels of life inexpressible in film. Take the less conscious levels. The dream sequences of *Lady in the Dark* (Mitchell Leisen) abound in symbols. In dream one, Liza Elliott is 'floating in space,' and the floor has dissolved into a wilderness of mist with two leafless trees. Her costume suggests a man's tail coat. She comes to a coffin-like box labelled on top 'Editor-in-Chief Private.' From a rope trailing behind her she takes the key, when the lid slowly opens and a blue dress floats out and away. She runs after it and catches it; she clasps it and in a rapture circles in dance with it; suddenly she is wearing it. Symbols of what? When very young, she remembers later, her father was the center of her life. But when she was five, a man complimenting her mother in Liza's hearing doubted if Liza was her mother's child, so plain was Liza, so beautiful her mother. Soon after that her mother died, and Liza thought to console her father by wearing the beautiful blue dress he had loved when her mother wore it. He was angry. 'How dare you put that dress on. Don't ever do that again,' he said. She felt that the man she had loved most had turned on her. At school she had never been taken out by a boy—except once, when she had been very happy in going with him, and he had left her during the evening for another girl. From then on, she had 'never been interested in men,' did well in her studies, found a man-size job as editor of a magazine, and wore mannish suits. Hidden from the more conscious levels, it was a striving to escape hurt by not competing with women for men's affections. The analyst helped her unlid the mannish front, and out floated a blue dress, the symbol of her father's love, of a man's love; and in her dream she ran after it, caught it and wore it.

To an analyst of experience these things in their context have plain meanings; were unclear to most who saw them, even in context, apart from explanatory dialog. Yet the material of dreams, the sudden shifts, the misty presences, narcotic minuteness of detail, and the concreteness of the impossible, in which the buried part of ourselves expresses itself, is eminently filmic. They are things that are seen and heard, things that picture the play of hidden forces, and no art but film can interpret life at this level so subtly. From the lag in culture, whereby discoveries of the last century are only now filtering down to popular possession, the symbols couldn't speak for themselves but needed words to interpret them.

The degree to which language must eke out the meanings of things is another limitation, then, of their effective area. In *Channel Incident* (Anthony Asquith) a shot of a life-belt aboard a ship stands for a vessel. A good filmic metonymy. But three different ships are suggested by placing a different name on the belt in three different shots. The visual metonymy is good for the Euramerican world and part of Asia, the verbal one for parts only of Europe and America. In *Cavalcade* (Frank Lloyd) a newly-married couple walks from the rail of a liner. Their bodies had hidden the life-belt which told the rest. On it was painted 'S.S. Titanic.' Today it cannot be assumed that this would speak to all even of the English-speaking world. Things, whether heard or seen, are the symbols

proper to film; words are for the book or play. There is no reason but want of imagination or care for imposing the limitations of the word on film.

For a like reason figures in film should be treated in categories not of rhetoric but of film. It would be no long search to find others—allegory in Chaplin, antithesis in Hitchcock, parallelism in Griffith, vision or the cutback from Griffith to Sturges, and anadiplosis or the carry-over in Saville and Asquith. But enough examples have been given to show that for the figures of speech there are filmic analogues. And in film the figures metaphor, metonymy, synecdoche, simile, hyperbole, and often others, are but various uses of things that point beyond themselves, of things that are significant.

Abstractions Made Alive

Take the abstraction Death, and watch how it is expressed in many things. It can be shown—the death of a queen—by a servant snuffing the lights in a candelabrum (*Catherine the Great:* Alexander Korda). And of a soldier: upper left, lying in shadow, a hand; center, just out of its reach, a revolver; and the rest of the floor littered with broken dishes (*Went the Day Well:* Alberto Cavalcanti). And a girl, mortally hurt, lying, bright-lit. The light leaves her, and there is only her shadow on the wall (Richard Eichberg). In *Scarface* (Howard Hawks) Gaffney is bowling. The camera follows the ball. The pins are scattered. Abruptly a shot raps. The last pins totters and falls. In the same film, as Tony enters a door he turns to the name on the glass and drives his fist through it. The name is Johnny Lovo. Soon a shot is heard offscreen. Johnny is dead. In *M,* a homicidal psychotic had given candy to a little girl and gone for a walk with her. Hand in hand they pass behind a shrubbery. The ball she had been playing with bounces out from behind the bushes and bouncing lower and lower comes to rest (Fritz Lang). In *Hangmen Also Die* by the same director, when the bowler-hatted Inspector Gruber smothers under the towels, there is a shot of the floor and the four legs of a table. Dangling at the table's farther edge are the Inspector's legs, and on the floor his bowler hat rocks on its crown vigorously; rocks quicker, shorter; stops.

And by changing the context, watch a thing change meaning many times. Take, for example, feet. The feet of the woman who thought she had killed, that walked the streets for the whole of a tortured night (*Blackmail:* Alfred Hitchcock); feet that leap two steps at a time in eager welcome, slow feet that rise to discovery and confession (*Cynara:* King Vidor); high-flung feet of German soldiers in Berlin, German prisoners' feet in Russia, ill shod, stamping to keep warm (*Moscow Strikes Back*); the feet that climb the brisk steps of success and the feet that falter (*Rhapsody in Two Languages:* Gordon Sparling); the pipers' that walked unhurried through death and the desert night (*Desert Victory*). Yet less the gait or shoeing of the feet or the place of treading, but rather all that has been told before, all the minutes the film has run till then, sound in the chord of horror, humiliation, courage, failure, joy, or foreboding.

For no foot, broken dish, ball, bowler, or candle has any depth of meaning apart from the context. A fingered lapel could express, as well as fear, shyness; and a chime convey, not consternation and menace, but love and idleness. And the context is not only the whole flow of events till the moment of a thing's occurrence, but words, gestures, things, and persons, part of the event in which a thing occurs.

A director of lower stature commonly relies on words, a context more theatrical than filmic, no advance on the possibilities of the stage. In *The Defense of Siberia* (the Brothers Vassiliev) the Japanese commander smashed a plate, saying as he did it, 'You Russians can do nothing but destroy.' Without the words, not contempt, but threat, irascibility, impotence, also might have been meant by the broken plate.

Closer to the film is pantomime. It is visual purely, but relies little on filmic possibilities like angle and cutting. Napolini striking a match on Hynkel's bust and in Hynkel's presence clearly shows indifference or unconscious contempt (*The Great Dictator:* Charles Chaplin). And patting a shaggy overcoat, as one encouraging a dog, expresses an unconscious evaluation of the wearer (*The Gold Rush:* Charles Chaplin).

A thing gains meaning from the hands that use it. Like a paper napkin, absently strangled in the fingers of a murderer (*Shadow of a Doubt:* Alfred Hitchcock); a bread knife, seized as for killing when a German guard leaves, converted in gesture and grip to cutting bread when the guard enters the room again and levels his revolver (*Went the Day Well:* Alberto Cavalcanti); an ax, taken from the wall and wielded when violence is purposed, cleft into the wall again when constitutional measures are settled on (*Tennessee Johnson:* William Dieterle); a mirror picturing her own face, shattered by Henriette in *Flesh and Fantasy,* she who had herself torn all beauty and joy from her own life (Julien Duvivier); a scarf, slipping through a man's hands, as a woman slowly draws it from them in reluctant parting (*The Defense of Siberia:* The Brothers Vassiliev). Things express inner states their users wouldn't acknowledge in other ways.

Inner states are often conveyed by close-ups of things a person is looking at, for mostly it is inner states that govern his attention. Marshall Tyler, told that he is to kill someone, looks in passing at the sketches of a street artist. The camera pans along them, stopping at the sketch of a corpse dangling from the scaffold (*Flesh and Fantasy:* Julien Duvivier). Barry Kane, pursued by the police for an arson he didn't commit, is given a lift by a truck-driver. The driver asks him to pad something that's rattling. Barry looks where the rattle is, his hand moves—but pauses, and a close-up of the fire-extinguisher hints at the fears and memories flushed at the sight of it (*Saboteur:* Alfred Hitchcock).

Inner states are also suggested by things that seem by chance to come in the frame when an event is happening. But since art implies deliberate selection, we properly attach meaning to whatever things are placed before us by the director and the point of their entrance. In *I Stand Condemned* (Anthony Asquith), Peter carries Natacha from the table after the banquet of betrothal. The camera holds him in the frame as he strides, and between him and the lens there floats across the frame the nude statue of a woman, buttocks and legs only, torso and head cut off by the top of the frame.

With more mature people, and the setting aside of theaters for adults only, physical passion could be expressed less insipidly. But still by things alone could its innerness be given us. In *La Bête Humaine* (Jean Renoir) Jacques waits by the tracks. It is raining heavily. A train roars by. Severine meets him, and they walk together to a small hut by the tracks. The camera falls to their feet as they cross the threshold, and it pans then to a water-butt under the eaves. The face of the water is exploding from hurtling

rains, a tumid core of water from the spout thrusts to the barrel's deeps, and over its edge a surge of water weaves wavering cords down the staves. Dissolve to the water in the barrel from the same angle, now a calm glass for a clear sky. The camera pans back down to the doorstep. The man's feet slowly come and wait. Hers join them.

Things in Contexts

Significant things are a means for a director's comment, subtler, defter and more memorable than most of the strident verbiage that passes for commentary. In *Sullivan's Travels* (Preston Sturges), a director of talent and integrity is to make a film on the life of the underdog. He is impressed that he lacks experience. Dressed in rags, therefore, he starts for the jungle where hoboes wait for the freights. He arrives in a limousine, with The Girl (also in rags), a chauffeur, and valets. The moving camera catches in the frame a tethered goat. His beard wobbles as he chews and stares at the entourage in enigmatic speculation.

Significant things can describe with economy places, events, and people. When the former-lawyer-now-bum decides to attend his class-dinner, the first shot at the hotel is a table top laden with silk hats. Over the top of them, he is seen entering the door in a borrowed suit. An opulent stratum of society is established by the line of hats (*Tales of Manhattan:* Julien Duvivier). In *City for Conquest* (Anatol Litwak) Burns and Peggy sign their first variety contract. Peggy sinks into a chair and with a joyous kick flings her shoe off to a corner of the room. When the agent leaves, Burns approaches her caressingly. 'Let me go . . . my shoe, Murray, get me my shoe.' As she speaks the camera slowly leaves them, pans over to the corner and rests on the shoe. Her voice stops; the shoe stays; and so does she.

A group of things in one frame is in a higher degree filmic; each is a context for the others, and the whole is a meaning not inherent in any one of them. A furious tommy gun and the flitting of the sheets of a calendar pad combine to describe a period of gangster warfare (*Scarface:* Howard Hawks). Struggle is conveyed by a man's advancing with effort through billowing smoke (*We Are From Kronstadt:* E. Dzigan); revolt by an arrow's piercing and snatching from the holder's hand his wand of office (*Robin Hood:* Michael Curtiz); political domination by the shadow of a German eagle on the map of Europe (*The Prime Minister:* Thorold Dickinson), or the map of Norway pounded by a fist (*The Moon Is Down:* Irving Pichel); missing a train by running legs and a shadow that moves further and further from them off the frame; and the slow unhindered approach of war by a newspaper's floating little by little nearer till in close-up it explodes to the title 'Crete' and a naval action (*In Which We Serve:* Noel Coward and David Lean).

Repetition of a pattern shows how much its meaning depends upon context. Up to a point in *Heart of a Nation* (Julien Duvivier) the action had been all in France. Then a sequence began with a shot that was puzzling, unrelated: a gap in a jungle; seen through the gap, a river; running down the bank to be lost in the waters, a pair of steel rails; just beyond the bank, something hutlike rising from the water with a monkey playing on its roof. We cut then to the inside of a tent, with two men, half-delirious with fever, weak, foodless and without medicine. 'The train is coming.' They start feebly forth for it. They walk a jungle path to the end of the steel.

Froment talks several times of hearing the engine. His companion falls. Froment shambles precariously on. A long shot from ground level, huge wooden ties pacing off to the far distance: there at the meeting of the tracks, a mere speck, is a human figure, the jungle behind him rising dense and tall. Then the first shot is repeated: the rails lost in the river, the monkey playing on the drowned engine cab, and not a sound, not a sound at all. The things are familiar and they are quickly noted. But they are now laden with meaning, and their silence is the silence of death.

And when a meaning is once imposed, a thing repeated can waken again at sight and without a word the response established in the audience. When Rainer in *Random Harvest* recovered his memory, he found in his pocket a key—to what he knew not, for all that had happened since his memory had left him was a blank page. When he holds the key in his hand, as he talks to his butler, sits in a theater box, or works in his office, he is known to be troubled, reaching back, for what can be locked away in his lost years (Mervyn LeRoy). We are told in *Phantom Lady* that a woman has been strangled by a tie. Later, before another strangling, the murderer whips off a scarf, tautens it between his hands. In the last sequence he is alone with a woman. When he tugs off his necktie and between pronated hands tautens it, the audience tenses in dread (Robert Siodmak).

Recurrences

A thing does not always recur to effect on each appearance the same response; its meaning can deepen in every context, like steps that carry down under water. The poster in *The Informer* (John Ford) can be verbalized as a symbol of chance or fate or what you will, but the feeling it gives is a first order fact we have all experienced. Gippo Nolan, striding tall, taken from a low angle. He stops at a poster offering ten pounds reward for the capture dead or alive of Frankie McPhillip. He rips it from the wall. He walks away, and as he stops to listen to a street-singer, the poster blows down the street and tangles in his legs. Next introduced is Katie, a street-woman whom Gippo loves. She is leaning against a lamp-post. A man who is watching her is leaning on another. Carefully aware of the man, she walks away. The wind, as she walks, blows the poster against her legs, and she stoops to disentagle it. Later in a third sequence a third character enters. Field boots walk past a pair of civilian ones. The civilian boots turn to look back at the soldier. The poster blows along the path and catches on the boots. Hands pick the poster up, and the camera rises to show Frankie looking at his own face on the vagrant poster. Gippo informs the Black-and-Tans, and is going to use the ten pounds to send Katie to America. But he falls in with an old crony, and before dawn all the money had been drunk. As the end approaches, Gippo Nolan and three of the Irish Republican Army are in one room. Gallagher places the poster on the fire with Frankie's picture and the words 'Ten Pounds Reward' upward. The camera shows Gippo's face, impassive, Gallagher's as he turns probing eyes from the fire to Gippo, Bartley's eyes, also on Gippo, and O'Connor, somber, fire dancing on his face. Gippo's eyes, then, looking: and this that they see—the poster, charred, floats in a draft up the chimney. Frankie was gone, the ten pounds was gone, all was gone but his fear, his fear of the vengeance tingling in the air he breathed.

Like music, film is a flow in space-

time; and a thing, like a musical theme, in each recurrence can be changed in size or shape, in angle or lighting or color, in background, musical or visual; it can be halved, enlarged, multiplied, or treated in a score of other ways, each giving its meaning a new direction. There is a varied series of cups in *City for Conquest* (Anatol Litvak). The first night Peggy and Murray met, they won a prize for an exhibition of dancing. Every competition they hear of, they enter and usually win. At last they become professionals. In the meantime Danny, who loves her, is a truckdriver. Though of some repute as a boxer, he refuses to become professional. In her view, he lacks ambition. There is a sequence roughly thus: sound of applause, Peggy and Murray spotlighted on a dancing floor, bowing; dissolve to a marquee announcing a competition; a prize cup; dancing feet; one after another, three cups, each over-topping the previous, each inscribed for a different step, Rumba, Tango, Samba; with each cup a few bars of a dance rhythm followed by clapping. The final shot, following the hugest cup of them all, is a shaving mug in close-up, holding a brush. As a hand reaches for the brush, the retreating camera shows Danny in shirtsleeves lathering his face in a tenement room. Months of Danny and Peggy were in the ever-largening cups and the final mug.

Here a thing is found in each of a series of events, and the direction of the series of events is conveyed by a variation of a thing's visual form. At this point of the story, it is less the events than the way they are moving that is important.

Rather subtler in *Colonel Blimp* (Michael Powell and Emeric Pressburger) is a movement in reference or kind as well as in size or direction. Clive Candy embodies the traditional assumptions of the public-school Englishman. One of these assumptions is that war is a form of sport followed by gentlemen, in which prey is hunted under certain customary observances. On his return to London from Berlin, Candy's aunt invites him to stay with her, saying she had plenty of room for all he could bring home. 'How much room!' she says. There is a shot of a wide wall, glowing blue as a late afternoon horizon, furniture low on the wall to spread its dimensions. The shadow of Clive enters and then himself, and he stands back to the camera, looking a while at the great wall, which impresses its immensity on us. He turns towards us walking off left, and the shadow swells large and larger on the wall, almost covering all the subdued blue. The crack of a rifle, and on the blank blue wall, in close-up, an animal's head. Underneath, a date and a place. This proceeds for half a dozen or so—gazelle, crocodile, gorilla—at various outposts of empire and at various dates from 1902 to 1914. For the last a solemn tense roll of drums, there on the blue screen the tip of an elephant's trunk, and the camera slowly and impressively raises its eyes up the trunk's expanding width to the great skull. 'Indian Elephant, Bengal, 1914,' I believe is the label. Then a pan around a corner of the room, the sound of a machine-gun, and the camera reaches a German helmet mounted on a stand: 'Hun, Flanders, 1918,' was beneath it. The helmet's inclusion in the series, over a label of the same form as the others, preceded like them by a burst of gunfire, suggested that the collector of them all had shot them each with a motive much the same.

Similarity and Difference

In the same way, where two continuous events are compared, for example

two lives, the sameness or difference of the two events can be expressed in things that are common to them. To counterlure Peggy from the dancing floor and Murray (*City of Conquest*), Danny enters the ring for fame and money. Things common to the stage and the ring are posters, trains, columns in the paper, pairs of responding feet, audiences, applause, flood-lights; and in terms of things the events of years can be told, and their excitements and their tears. Billboards, one for YOUNG SAMPSON (Danny) and one for BURNS AND COMPANY. A train sweeps up to and beyond the camera. One billing after another, YOUNG SAMPSON further down in the preliminaries each time till in the last he is the main event, BURNS AND COMPANY in larger and larger type. And so on.

It is clear that when two things or groups, patterns or progressions, are compared, analysis can find both differences and likenesses, expressing satirical, tragic, humorous, indeed almost any nuance of commentary. To pronounce a given case a simile or an antithesis, is here to ignore the difference and there the likeness: in every case both always exist.

In *The Lion Has Wings,* for example (Powell, Hurst and Brunel), Hitler at a rostrum, speaking, gesticulating, is followed by a patent-medicine salesman at an English resort, taken from a similar angle, proclaiming his nostrums with similar speech and movement. Here is an unexpected likeness in persons different in country, prominence, and function. The commentary lies in the likeness and gains force from the difference.

Preston Sturges in *The Lady Eve* suggests a passenger's boarding a liner from a tender by a shot, first of the liner whistling, then the tender. A convulsive spurt of water, then a desperate soundless puff, before the siren of the tender found its voice. There was a stuttering amazement, a drunken incoördination, to these elaborate preliminaries foiled by the liner's lofty unruffled burst of sounding steam. Here things that are like in place, in sound, and in function, are unexpectedly contrasted. The commentary lies in the difference and gains force from the likeness.

But often it isn't easy to say on which side the commentary lies. To tell us wars are won as well by food as munitions, Pare Lorentz compared the gaits of a tank and a farm tractor. Shots of each he intercut alternately, taken from a similar angle, each peering slowly, for example, over the summit of a slope. The slow, heaving advance of the tank to shatter and the tractor to sow were likened in purpose by a likening in pattern and a placing of them together in space-time (*The Plough That Broke the Plains*). But which was the commentary intended: fighting and feeding as two sides of the *same* nation at war, or the *contrary* deeds of growing grain to feed men and firing guns to kill them?

Another case. It is 1919; it is Alsace Lorraine; it is underground. In the gallery of a French coal-mine, a miner, trapped, exhausted, is tapping signals on an air pipe. One of the German rescue crew breaks through to him. In oxygen mask, as if clad in the eyes and proboscis of an insect, he had lost humanity, and the mask is German. Dissolve to the war that is just over, French soldiers lying in a field, hurling grenades. The tapping on the pipes quickens, becomes the staccato bursts of a machine-gun. Over a rising terrain, German soldiers advancing in gas-masks. The tapping miner, now in uniform, is rigid with terror. A German soldier approaches and the two grapple. With hand under chin, the German thrusts back the Frenchman's

head. Now a return to the mine, the French miner pulling off the mask of the rescuer, who with hand under chin is thrusting back the Frenchman's head. The mask is torn from the German's face. The Frenchman collapses. The rescuer pauses, then quickly strips off the rest of his breathing gear, and begins dragging the unconscious man. He stumbles against a wagon, setting it slowly moving down a gradient. Till his grip relaxes the rescuer heaves. He falls. Rescued and rescuer, Frenchman and German, lie together, poisoned by the same gas. Swifter glides the wagon, at a curve it leaps from the tracks, crashes. (*Kameradschaft:* G. W. Pabst).

There are likenesses in visual pattern: the masks, palms thrusting back chin, the grapple. There is a change in circumstances—from the tunic of war to the smock of peace, from the mask of the killer to the mask of the rescuer, from gas the ally to gas the foe, from paddock to crosscut. In each case by the fire-damp of mistrust and violence both are prostrated, and the unhindered car, whatever symbolic load we charge it with, leaps from the tracks to smash. The two men stand for two nations. It is a comparison that continues to echo deeper meanings, which difference and likeness both combine to create.

It'll then be clear that when things in consecutive shots are likened, the camera must be so placed in relation to each thing that the pattern common to the series can be clearest seen. When Lorentz compared the tractor and the tank, he mostly shot them from ground level as they came towards the camera. To the eye the endless treads are the immediate resemblance, and in an upward angle the ground-gripping tug of the rolling lugs is most of the machine (*The Plow That Broke the Plains*).

Angle and Frame

Angle implies distance (long to close). In *Tales of Manhatten* (Julien Duvivier) the composer Smith felt and was treated as insignificant. First when he entered the Concert Hall by the stage door, the camera was looking distantly down from the roof. In the broad converging planes of walls and floor a tiny door opened, and in its little white patch was the spot Smith.

Angle implies direction (round the compass, from floor to zenith, and by various devices from lower than floor level). Not only does direction single out a part of an event for stress (the treads of the tank for example); it is a way of combining things or events in fresh meanings. Smith entered the Concert Hall during rehearsal, and his cellist friend was to introduce him to the conductor. As he edged along the wings, trying in vain to catch the cellist's eye, he was, from the camera's position, on the further side of a closely-spaced wooden colonnade. Excluded from the great world of music he strove to enter, the columns were as bars from behind which he was gesturing impotently.

Making a film is deliberate and conscious, at its best intuitive. We must therefore assume the edge of the frame and what is disclosed by it (like the hem of a skirt) intentional. The frame should include nothing which doesn't enrich the meaning of the film. In *The Golden Mountains,* when the peasant Peter is enraged, the steam from the factory is thrusting, puffing, throbbing vehemently behind him. In the steam his rage is articulate (S. Yutkevich). While the former-lawyer-now-bum adjusts the tie of his borrowed finery, in the background a fellow-lodger in the shelter adjusts the collar of a turtle-neck sweater with a lofty fastidiousness (*Tales of Manhat-*

tan: Julien Duvivier). When the Teuton knights were judging the burghers of Pskov, they were bound and on their knees, hatless, of reverend age, hair free-flowing and long (*Alexander Nevski*). For quite a while we never see the burghers and the knights together in the one frame, and never the burghers but one of the great bonfires is raging behind them. In Eisenstein this is not without intention. But in every shot of the knights was the stillness of death. Nothing that stirred; their faces hidden by visor and helmet. They were not human. They were anonymous automatons of destruction.

And when the hidden has more force than the seen, angle can hide. In *Abdul the Damned* (Karl Grune) a girl is being decked for her nuptials. The man she is to marry has a name for malignant cruelty, she doesn't love him, she is marrying for the life of her lover. She is in a glittering dark dress. As the camera slowly approaches her and her maids from a low angle, the hand mirror she is holding blanks the entire oval of her face, and is framed by her hair; and the grief and the horror that are hidden rise in the watchers. No face could convey them, we feel, and if any could, we should hardly dare look.

Not only can angle include and relate things, not only obscure one thing with another: it can omit a thing completely from the frame, to clothe it in the indefinitely expansible significance of the unseen. In *Unpublished Story* (Harold French), Trapes, the dupe of a fifth column enterprise, is being tortured. The Nazis wish him to phone for the return of a letter he has written. Trapes is sitting center frame; standing behind him, two men, one of them Stannard, a Nazi; and the left third of the frame is black—someone's back, standing close to the camera. Trapes refuses. Stannard says 'All right, Hayter.' The black back at the left slowly spreads over to Trapes with a sense of nearing menace. Trapes' face, white-lit, glistening with sweat, looks in terror down as at Hayter's hands, hidden by his back from the camera. That's all we see of the torture. And in *Jane Eyre* (Robert Stevenson) the mad wife remains horrible to us for she is never seen. Her door, her shrieks and her sobs, a distant silhouette at a window, hands clawing her husband's throat from out the bottom of the frame, but never her.

An event can be excluded from the frame and its character conveyed by a thing that still remains. In *Cottage to Let* (Anthony Asquith) Nazi agents kidnap an inventor. His laboratory is darkened. He stands facing the camera, center, the further side of a motion picture projector. Its lens is pointing camera-wards, and over to the right. The drowsy monotonous hum and irregular disturbing flickers of light are suddenly cut by a sound of shattering glass. A rush of wind ruffles the inventor's hair, stirs the film that hangs in loops from his neck. 'What's the matter?' he asks, and after a little goes to find out. From a low angle the camera slowly approaches the projector until it centers it. From underneath it is gunlike and a gun stands for death. It is a machine, sprockets continuing indifferently, though the operator, it reminds us by this, is gone. It continues to hum, click, and flicker in the gloom, impassive, enigmatic, like a thing that knows but won't speak.

By consequence, the moving of things from the frame when the shot is by an approaching camera is also, and more clearly, purposeful. A cabinet minister's wife has just given him two choices: to allow himself to be divorced, with a dearly-loved illegitimate daughter for co-respondent, or to have his daughter's par-

entage made public. Either choice would require his resignation from the cabinet and could result in the defeat of the government (Victoria was queen). He stands at right frame, back to the camera, by the dressing-table at which his wife had been sitting. The camera sees him in each of the four mirrors, half-length reflection, two right profiles and a left, and full face, third mirror from the left. Slowly the camera begins to move closer. Seymore's back passes out of the frame, and on the left side, one of the mirrors. An eddy of music bubbles into the flow of the shot and continues. His voice, though not his lips, repeat a fragment of his daughter's parting letter '. . . better for both of us. . . .' There is a low rumble of drums. All things are leaving the frame but the full-face reflection which is growing larger. There is the distant pulse of a train. His eyes are fixed on something far off, his lips parted, face glistening. We are more aware of the train. The camera no longer moves: there is but one Seymore in the frame, full face, half length. Suddenly, the reflected face turns from us, and from off the frame right the man himself swings back before us. Mirrors, table, all that was behind him has changed into a flat black, and on the black, taken from below, is his face, looking upwards at something that stares with a hard white light and stamps on the face a mould of rigid fear. The rush and clatter of the train gains on the music in an overwhelming crescendo. There is a last fierce piercing shriek from a train whistle. And an abrupt cut. A newsboy, oblique on the screen, skirted by a newssheet, is yelling, 'Death of a Cabinet minister.' (Anthony Asquith: *Fanny by Gaslight*). It was not part of the absorbing event, it was not until I was walking the gleaming streets after, that I said 'The four mirrors, of course, are four choices, and the floating of all but one off the screen is deliberation that ends in sudden decision with his quick swing around again to the camera.' Well before my verbal analysis the full force of the meaning created had possessed me.

Subverbal Levels

And of some things in film that excite a strong reaction in me, I find I have to talk much to convey an impression, and however much I say, something eludes me. Such things have meaning for me on levels beyond the conscious, levels below the cortex, and reasoning and words on such levels are unavailing. These are poetic things; they speak directly, cannot be clothed in words without loss. And so it is with an oil painting or symphony—to understand is to be silent. Such things mostly speak to eye and ear together. There is a long shot of a cliff in *We are from Kronstadt,* as eleven sailors in revolt file to its edge for execution. Their hands are pinioned behind them, and hung round their necks, dangling on their chests, rocks. In a closer shot, the officer in charge of the Whites points to the first. The sailor steps forward. 'Good-bye, comrades.' His balalaika, held by a White Russian soldier, catches his eye. With a sudden motion he kicks. The balalaika flies from the guard's hand, every string singing in resonant harmony. A down shot of the balalaika falling to the water, shrinking in size as it nears the foaming sea. The twanging vibrance quickly softens, as if spreading to immensity. Cut to a shot of three sailors' caps, floating on a swelling sea. A long shot of the cliff and the single tree, one distant White Russian looking seawards. He straightens up and goes. The sounding balalaika dropping to the sea affected me strongly, yet nothing I

have put in words has made me certain why.

In *The Thirty-Nine Steps* (Alfred Hitchcock) Annabella points through the window to the men who are following her. She tells Hannay why they intend her death. After supper again they cross the hall, and after they have left the frame, the camera pauses. The walls are a warm dusky white, a setting for three things; left, and almost the height of the frame, the pure black marble of a bust and pedestal; to right of center a window, through its full-open sash black matching the marble, and the sill glinting; above the window, blown by a violent wind, warm white curtains reaching frenziedly for the ceiling, and but for their almost inaudible flapping, no sound. Before dawn Annabella was dead. In its context, the pattern of window, bust, and curtains gave me a chill of apprehension, but none of the ways I reason out its cause account for it completely. Such things are part of the film at its highest.

Film, newest of the arts, is kin to five before it; the picture, the narrative in words, the dance, the play, and the symphony. Film is new in its materials, and it is wise to eke out its green years from arts that are older. But with new materials new means are awaiting discovery, and it is wise not to borrow to the point where that which sleeps is not released but stays covered. The devices of other arts are merely sign-posts to something like them in film. The device, when it's found, is a filmic one. From the narrative in words film can learn that symbols for tangible things can stand for the non-tangible; can convey sadness, joy and rage, moods of the person or crowd; can rouse in the beholder states that are less conscious, non-cortical—synaesthetic 'spiritual' states not to be described in words. This quickening of things to expression is art—and life too— at its most intuitive: 'Raise the stone and there thou shalt find Me; cleave the wood and there am I.'

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The voyager finds that the language itself in which he must recreate and extend tradition is an instrument with a limited number of keys like a piano. Moreover, on this instrument countless tunes have already been played, certain arrangements of notes are so familiar to the ear that it is difficult to imagine new combinations. The past exercises a tyranny of words and associations over the present. Moreover, present-day vulgarity has set up a series of degraded meanings and associations, through the press, advertisements, commerce, the wireless.

Returning always to the reality of the situation of being alive, three important things remain true. The first is that the world itself remains independent of words, whatever things have been said about it: nature is infinite and inexhaustible, and therefore every school of writing that wants to break away from literary fashions can do so by forgetting books and appealing to the reality of nature. The second is that whatever pattern may be imposed on his life, the individual man is still an individual, full of depths, encountering at every turn the terrifyingly new and the unknown, involved in the situation of having a body, having to die, and being cut off from his fellow-beings. The third is that life is continually altering, so that nothing said in the past can entirely enclose the present. Life, the individual mind, nature, history, do not become exhausted. Time does not stop. It is only traditions and fashions which become exhausted when they cease to draw nourishment from life. The idea that the world can grow 'weary, stale, flat and unprofitable' is the illusion of a tired brain seeking a new impulse from nature.

STEPHEN SPENDER, *Life and the Poet*

SEMANTIC ASPECTS OF LANGUAGE AND MATHEMATICS*

ANATOL RAPOPORT

THE SAYING, 'Mathematics is a language,' becomes significant when we examine both the ordinary languages and mathematics as peculiarly human forms of behavior. In both cases, the behavior consists of the manipulations of symbols. The object of mathematical manipulations (aside from utilitarian computations) is a mystery to many people, and even mathematicians do not generally agree as to why they behave as they do. We shall inquire into this matter later. It is generally agreed, however, that the manipulation of the symbols of ordinary language is supposed to function in such a way that cognition of reality becomes transmissible independently of direct experience.

Rudiments of language may exist among some animals. A whole group of individuals may become cognizant of danger without direct contact with it through a warning cry of one member, who *is* in direct contact with it. But this last qualifying clause is the paramount limitation of animal languages. The fact that this limitation has been surmounted by man is significant. An animal is capable of transmitting knowledge of 'danger' or 'food' at hand but is incapable of saying,

'Last Tuesday I saw a panther with four cubs in a ravine a mile and a half northwest from here.'

Even less is an animal able to transmit knowledge acquired by experience to succeeding generations. Man is able to do so, and this transmitted 'knowledge' accumulates into vast systems called cultures.

That which makes possible indirect transmission of extremely complicated situations is called 'abstraction.' Certain aspects of a situation are stripped of all but very few attributes. A complex of these attributes is associated with a complex of sounds (a word). The word, when transmitted and received, is supposed to start a process in the recipient which reconstructs the situation. Of course the *entire* situation is never reconstructed, but enough of it is supposed to be reconstructed to serve the purpose of the communication.

The advantages of this system are obvious, but it often blows a fuse. How this happens is described in the literature on general semantics and allied subjects. General semantics traces these disturbances to confusion of *orders of abstraction.*

Entire cultures have become stagnant and degenerate because of the establishment of rigid behavior patterns governed by reactions to symbols. Such patterns vary widely, ranging from taboos of primitive demonologies to the intricate superstitions of high civilizations. In all

* Lecture delivered to members of the mathematics and English departments at the University of Madras, July, 1945.

cultures we find widespread evidence of preoccupation with word magic. In primitive societies patterns of behavior based on word-magic result in continued ignorance about the objective world, succumbing to disease, conquest by invaders, etc. In civilized society they result in monstrously inefficient economic anarchy, psychoneuroses, devastating wars, etc.

The aim of general semantics is in part to evaluate language as a motivating agency in human behavior. Clearly the important phase of such evaluation is the negative phase: one studies those properties of language which prevent it from functioning as it should—the pathology of language, if you will. In such a study the examination of the methods of mathematical cognition is useful for comparison, because mathematics in general does function as a language should, *i.e.,* it enables mathematicians to draw like conclusions from like hypotheses.

Let us therefore examine those characteristics of mathematics which are absent or undeveloped in ordinary language. They are (1) Postulational Method, (2) Concept of Function, (3) Explicit Delineation of Regions of Validity, and (4) Operational Definitions.

Actually all four characteristics can be included in 'Operational Method,' which governs mathematical reasoning, and contrasted with the 'Substantive-Predicate Method' which governs the reasoning dominated by the structure of ordinary languages. But for clarity's sake, we shall subdivide it into the four divisions named and attempt to synthesize them later.

Postulational Method

The Greeks realized that if a system is to be constructed in which each proposition depends on propositions previously deduced and each term or terms previously defined, then the foundations of such a system must necessarily consist of unproved propositions and undefined terms. This explicit admission of the fact that certain propositions must remain unproved and certain terms undefined implied that to establish the validity of a proposition one *must* prove it, and to establish the meaning of a term, one *must* define it. However, since an endless chain of proofs and definitions is impossible, one compromises by leaving a minimum of things unproved and undefined. But what the Greeks failed to realize was the arbitrariness with which undefined terms and unproved propositions of a self-consistent system can be chosen. Somehow, certain propositions (which they could not prove) seemed to them 'self-evident' and certain notions fundamental. To start with another set of propositions, even if they were self-consistent, would have meant to deny the 'truth' of the 'self-evident' propositions.

Mathematicians, of course, realize the stifling effect of these 'self-evident truths' on the development of mathematics, precluding, as they do, non-euclidean geometries, abstract algebras, etc. However, we are interested here not so much in the limitations of Greek mathematics, but in the limitations of language, which has its roots in the same inadequate approach to the postulational method which characterized the attitude of the West to Greek geometry. The pernicious effect of Greek geometry lay paradoxically in its brilliant success. Here was a system of breathtaking beauty and compelling 'truth,' arrived at through the power of reason alone! Small wonder that the Greeks should conclude that this method ('truths' arrived at by formal logic from 'self-evident' propositions) is to be preferred to any other. In particular, there was a deep contempt for experiment, since observations based on crude senses 'prove

nothing.' This aversion for experiment is quite comprehensible to any lover of categorical conclusions based on deduction. Imagine the exasperation of a mathematician, attempting to prove a theorem of geometry, who is advised by a layman, 'Why don't you measure these segments to see if they are equal?' In itself, then, the disdain of the Greeks for experiment did exhibit a keen feeling for mathematics. Where it did most harm was in the assumption that these 'truths,' arrived at purely deductively, were truths about the objective world, and moreover that all truths of the objective world could be so deduced. The situation became even worse when the Greeks, seeing the discrepancies between reasoning and observation, postulated an 'existence' of an ideal, perfect world, of which the observable realities were but imperfect reflections.

To the modern mathematician geometry is not a natural science at all. The recognition of this fact exhibits the gulf between mathematics and the natural sciences. Only when this gulf becomes apparent can both mathematics and the natural sciences develop. On the one hand, the purely arbitrary character of the fundamental assumptions and the undefined terms of mathematics is recognized, clearing the way for the growth of generality, the most rewarding direction of development. On the other hand, science is freed from 'eternal truths' and experimental fact is placed in its rightful position of supreme authority.

Let us now turn to the role of 'self-evident truths' in non-mathematical cognition. Think of the damage done through the ages by such clichés as 'The whole is equal to the sum of all its parts.' The meanings of 'whole' and 'sum' and 'parts' are of course taken as self-evident. Try to *apply* this truth to actual situations. Are we to conclude that the magnitude of the resultant force is always the sum of the magnitudes of its components? Are we to conclude that colinear velocities always add up to their algebraic sum? The helium atom is made of the same 'things' as four hydrogen atoms. How to explain the discrepancy in mass? Other self-evident truths have gone the same way but not before they did their part in holding back the growth of knowledge:

'Where there is motion, there is a mover.'

'A thing exists only because there is a sufficient reason for its existence.'

'Causes always precede effects.'

All these maxims, so vital to philosophers and theologians, become meaningless noises in view of our present knowledge of the universe obtained from observations and controlled experiment and critical attitude to procedures. The discovery that mathematics is a *postulational,* not an experimental, system, freed man's thinking processes and delivered both mathematics and the experimental sciences from sclerosis.

Function

Function in mathematics is analogous to 'causality' in ordinary languages. But we shall see how 'function' is a very much more precise term (an operational term), and this will shed some light on the inadequacy of the notion of causality.

'Causality' in ordinary languages is riddled with anthropomorphic notions and magic. With the savage, demons 'make' misfortunes. With us gravity *causes* objects to fall. 'Laziness' and 'Lack of Ambition' *cause* poverty. So men in the pulpits attack 'lust' and 'greed,' and politicians attack 'Isms' as if they had objective existence like crocodiles.

The problem of knowing the world is

not the problem of finding 'what makes it so?' but of finding sets of conditions of which we can say, 'If thus, then so.' The problem is completely solved when we can interchange the 'thus' and the 'so,' *i.e.*, when we can also say, 'If so, then thus.' When this happens, 'cause' and 'effect' become useless terms. For example, in curvilinear motion, the physicist will describe the relation between force, mass, velocity, and radius of curvature. He does not look at these elements as either 'causes' or 'effects.' It is no more true that an increase in the radius of curvature causes a decrease in force than vice versa, or than that an increase of velocity causes an increase in force or vice versa. These things are simply *related* as described. In pure mathematics finding such set of completely interchangeable conditions is called finding 'necessary and sufficient conditions.' Some of the sharpest tools of mathematical reasoning, particularly in analysis, are directed towards these ends.

Let us now turn to the squabbles that accompany attempts to determine 'causes' and 'effects' in our world, come hell or high water. Does a 'culture' determine an 'economy' of a society or *vice versa?* Do leaders influence the collective will of a group or are they themselves influenced by it? Is a low standard of living caused by apathy of individuals or is it itself a cause? As we have seen, the physicist in his investigations usually ignores such questions of priority. He will never worry about whether a moving magnetic field causes an electrostatic field or whether the moving electric charge causes a magnetic field. The two go together. If agencies enter into the picture at all, it is the physicist himself. He can 'make' a magnetic field by moving an electric field and vice versa. The fact that in our study of society we are vitally interested in making certain conditions leads us to postulate the existence of 'agencies.' As a matter of fact, the only agencies are ourselves, and the effects of our influence depend on how thoroughly we understand the laws of motion of society, in which no agencies operate but only sets of correlated conditions. The question of causes and effects, then, reduces to a purely utilitarian question, namely, which sets of conditions can be most effectively controlled.

Suppose we find that in a society in which security is considered synonymous with accumulation of private wealth, the energies of individuals are largely directed toward such accumulation, and sets of values are established which preclude the growth of coöperative activity. And suppose that these conditions are found to be accompanied by a predominance of infantile personalities in that society, a frequency of frustration neuroses, high incidence of insanity, and crime. All these phenomena are observable. But they are all observed by people with different points of view about 'cause' and 'effect.' The man in the pulpit will ascribe the deplorable state of affairs to 'moral degeneration,' which in turn is 'caused' by loss of faith. His solution is to 'make' each individual regain faith in and fear of God. He cannot reach every individual, but he thinks that if he could, he could induce the necessary changes. Accordingly his efforts are directed to increasing church membership. The individual psychologist thinks society would become 'mature' if each individual became emotionally mature. This would happen if more people participated in coöperative effort. But he reaches even fewer persons than the man in the pulpit and often becomes discouraged. The social reformer thinks that the root of the evil lies in the fact that security depends on indi-

vidual accumulation of wealth and tries to effect legislation to make security a responsibility of society. The revolutionist thinks that social reforms are inadequate so long as a class, in whose interest it is to accumulate, perpetuates itself in power. He therefore speaks in terms of class struggle and seizure of power. But seizure of power depends on organized and disciplined collective effort, of which people conditioned to grasping for individual welfare only are not capable. The vicious circle is closed.

Whatever the outcome of that hypothetical sad state of affairs may be, I think you will agree that it is worth while to study similar situations. It is very difficult to study society with any degree of detachment for obvious reasons. But this we must do if we wish to be successful in our studies as the physicist was successful in his. To achieve this necessary objectivity, we must imitate the physicist rather than the savage. We must not look for devils and agencies, because these are too easily found and are of no use once they are found except to make faces at. We must do as the physicist does and correlate sets of conditions. The language for expressing such correlations is the functional language of mathematics.

Explicit Delineations of Regions of Validity

No mathematical statement can be made without a more or less explicit delineation of its region of validity. In theorems these regions are defined by the conditions of the hypothesis. In definitions they are restricted to the range of operation. Thus the Pythagorean Theorem applies to certain objects in a certain universe, *i.e.*, to right triangles in euclidean space. Of other triangles and other spaces, the conclusion of the theorem is false. A function is a mathematical definition, *e.g.*,

$$y = \sqrt{25 - x^2}$$

is a definition of y which states in part, 'If x is ± 3, y is 4; if x is ± 4, y is 3; if x is ± 5, y is 0, etc., for an infinity of other values of x between -5 and 5.' If y is real, no other real values of x except those between -5 and $+5$ can be included in the definition, otherwise we immediately become involved in contradictions. Thus the validity of both theorems and definitions in mathematics is lucidly restricted by the structure of mathematical language itself.

Let us see what happens in ordinary language. Aristotelian logic gives us the rules of reasoning embodied in

(1) Identity: A is A.

(2) Non-contradiction: A cannot be both B and not-B.

(3) Excluded middle: A must be either B or not-B.

These laws would be acceptable if there were anything in the objective world to which they could be *unqualifiedly* applied. As a matter of fact, such applications are completely valid only with respect to mathematical entities[1] simply because the latter are so constructed as to *make* these laws apply. What outside of mathematics can be substituted for A and still preserve the validity of (1)? Man is Man? But Man with a capital M is an abstraction, not a reality. Even 'men' considered as 'objects' are abstractions. A minute examination of a man will reveal such a conglomeration of processes and reactions as to make any even approximately complete description impossible. As I speak before you, I become a different set of particles and processes each moment. We do not live in a world of

[1] Some mathematicians maintain that even with regard to some mathematical structures (3) is invalid.

'objects' of which assertions can be made. Only the predominance of nouns in our substantive-predicate languages gives us that illusion. We live in a world of events, and no camera exists which can freeze these events into a picture which will stand still while we describe it. Yet the categorical majesty of 'A is A' leads people to translate it without compunction into 'Pigs is Pigs,' 'Jews are Jews,' 'Indians are Indians,' and 'You can't change human nature.'

The same considerations apply to (2) and (3). We know very well that this desk may be said to be both to the right and to the left of this chair; that Calcutta can be said to be both east and west of Karachi; that the length and mass of bodies have different values to different observers; but the tyranny of (2) prevents people from realizing many of these truths.

The corruption of (3) is the most prevalent. This abuse is what general semanticists call the two-valued orientation. Even the history of mathematics is full of man-made paradoxes and dilemmas which resulted from indiscriminate application of the Law of Excluded Middle. Numbers were thought of as necessarily either integers or fractions, blocking the study of irrational roots of equations. With the recognition of the real number system, numbers were still thought of as either positive or negative, blocking the study of complex numbers, etc.

The weakness of Aristotelian logic lies not in the principles above but in the fact that we think of the vast complexes of events as indivisible 'objects' with indivisible 'attributes' (because we designate them by individual words). We forget that no single statement made about a conglomeration of things need be valid even if deduced by formal logic from those principles. Mathematical reasoning teaches us to break up seemingly simple concepts into still simpler ones and seemingly indivisible conditions into sets of independent conditions. Thus it constantly refines its concepts by delineating regions of validity.

The most brilliant advances of science can be traced to a similar method. As long as temperature, rigidity, elasticity, mass, were regarded as properties of bodies, and bodies themselves as fragments of reality, molecular physics could not come into being. With the birth of molecules, all the properties above lost their absolute meaning, since they could be applied only statistically to large numbers of molecules, not to individual ones. More and more the physicist is aware of the necessity of giving qualified answers. Is space euclidean? Yes, within sufficiently small regions and away from large masses of matter. Is behavior of inanimate matter predictable? Yes, if matter is taken in large enough quantities. In short, it becomes clear that questions which only yesterday seemed straightforward, demanding an 'either-or' answer, today dissolve into ambiguities, which cannot be answered without a drastic revision and sharpening of concepts.

Operational Definitions

We now come to the most powerful tool of mathematical logic, the operational definition. We see the struggle to 'define terms' already in full swing in Socrates' time. Aristotle clearly stated the definition of a Definition, and he stated it in *operational terms*. That is to say, he did not apply the principle of 'definition' to defining Definition itself. Instead, he proceeded as a general semanticist or a mathematician would do. He tells us not what a Definition 'is,' but *what to do* in order to make a defi-

nition. Place a thing to be defined in a class; then name the properties which distinguish it from other members of its class.

Now strictly speaking, every such definition would itself be operational, if the operations indicated could be performed. A definition consists of directions telling us what to do to recognize the thing defined. The weakness of aristotelian definitions lies not in the method itself but in its non-applicability in a great number of situations, its only partial applicability to others, and, most of all, in its uncritical acceptance in all situations as infallible (as, *e.g.*, people accept dictionary definitions).

Let us take some homely examples. What is a Negro? Suppose we are told (as we possibly would be by the first person in the street) that a Negro is a person with a black skin. No matter that an anthropologist or a student of 'race' will give a considerably more sophisticated definition. It will merely result in more sophisticated contradictions. On the face of it the definition is 'operational'; that is, it tells us what to do to recognize a 'Negro.' First determine whether he is a 'person,' next whether he has a 'black skin.' Assuming we know how to recognize 'persons' and where to look for 'skin,' what can we say about 'black'? A scientific definition of black immediately reveals that no skin is black; in fact there are no black objects at all in this world. Of course our man in the street will immediately correct himself and say he meant 'dark.' But how dark is dark? Let us suppose we have determined that. Yet every person in this room except myself has skin as dark as the skins of American Negroes, and our man will not call you 'Negroes.' He will say you are 'Indians.' But when we ask for a definition of that, he will be in even greater difficulties.

Of course the examples we used were quite crude. For all I know, workable definitions of 'Negro' or 'Indian' may exist. By 'workable' I mean accomplishing their purpose. Where people are determined to accomplish their purpose, they will employ 'workable' definitions. In some parts of the United States, the chief purpose of 'defining' Negroes is to bar them from certain activities. Accordingly Negroes are defined simply as 'those people whom we (the Whites) call Negroes.' In many of our newspapers Communists are similarly defined as 'those people whom we call Communists.' These definitions are 'workable' because they accomplish the purpose of the definer. Moreover, they are unassailable, because they are tautological. To the scientist, for whom a definition must serve the purpose of recognition, not as a means of pinning the same labels on people he doesn't like, these 'definitions' are, of course, quite worthless. Actually neither a Negro nor an Indian can be defined at all except purely arbitrarily, because no such thing exists in the objective world.

The scientist, to whom definitions must serve as tools to further knowledge, is forced to use operational definitions, where the operations consist of examining criteria, and the workability of a definition will depend on whether the operations indicated are realizable and precise. All definitions of real entities are therefore limited by the inexactness of our observations and by the fact that our words are only abstractions of these entities and not the entities themselves. In metaphysics and theology, on the other hand, the operational side of aristotelian definition was completely lost, and only its sterile grammatical structure remained.

'What is God?' asks the Catechism. And the answer is in perfect grammatical form, 'God is a spirit, omnipotent, om-

niscient, and ubiquitous.'

Similarly the metaphysicist asks, 'What is Space? What is Time?, etc.,' and even the early physicists inherited the habit in their questions, 'What is Fire? What is Heat? What is Electricity?' The modern physicist has long discarded the question 'What is . . .' and asks instead 'What does . . .?' Nor is this in any way a retreat or admission of failure as many amateur philosophers (and some professional ones) insist, complaining that 'The physicists describe the *how*, but they will never be able to tell the *why*. They learn all about what electricity does, but they still haven't found out what electricity *is*.'

It is only the structure of our language and the pernicious thought habit of accepting definitions, which merely equate terms (as dictionary and catechism definitions do) that prevent us from realizing that *does* is the only content of *is*. Here indeed lies the greatest value of mathematics as a semantic discipline. All mathematical definitions are made in terms of operations, and the entities thus defined have *no further content* than that defined by the operations. In the development of the complex number system, negative numbers are defined by extending an operation (namely, the inverse of addition) to all ordered couples of positive integers; rational numbers are defined by extending another operation (division) to all ordered pairs of integers; algebraic numbers by extending the operation of factoring to all polynomials with rational coefficients, real numbers by extending the operation of passing to the limit to all sequences of rational numbers, etc. The same is true of functions. Functions defined by quadratures, by solutions of differential equations, by series, etc., are all examples of mathematical entities defined by operations alone. Mathematicians have long since recognized the irrelevancy to knowledge of the question 'What is . . .?' But unfortunately this formulation and the confusion which accompanies it still haunts our thinking about what we consider with varying degrees of error as the 'real universe.'

As examples of extensions of this semantic emancipation brought by mathematics long ago to our inquiries about the universe, the advances of modern physics again stand in the limelight. The so-called difficulties of understanding the Special Theory of Relativity vanish immediately and irrevocably as soon as one begins to think of such 'absolutes' as time and space in terms of operations necessary to define them. One says, 'In order to determine the "length" of an object, one *proceeds* as follows. . . . In order to determine the time sequence of two events, one *proceeds* as follows . . .' Length and Duration are then readings which result from the procedures, and they *have no further content*. All questions about the 'real,' the 'intrinsic,' the 'absolute' values of these quantities become meaningless.

Again the so-called dilemmas of subatomic physics are immediately resolved when one realizes that the term 'position of an electron' has a meaning only when one is able to say, 'To determine the position of the electron at a given moment, one proceeds as follows . . .' Then, when it turns out that no such procedure can be devised (this has nothing to do with the precision of our measurements but with a much deeper question), the emancipated thinker merely shrugs his shoulders and says, 'The meaning of the term "position at a given moment" is delineated by the possibility of defining it operationally.' He does not worry about such concepts exploding any more than

any physicist worries about the fact that 'elasticity' and 'rigidity' become meaningless on certain levels of observation.

Here we see the connection between the power of operational definitions (first recognized with full clarity in mathematics) and the other semantic aspects of mathematics, which can be summarized as the Operational Method. Delineation of validity is closely connected with operational definitions, because the latter, by exhibiting the operations employed, determine the region of validity. The concept of function is likewise bound up with operation: in mathematics obviously, in observation of reality somewhat more indirectly through the operations of which observation itself consists. Finally the recognition of the postulational nature of mathematics sheds light on the exclusiveness of the deductive method (also an operation) in mathematical cognition. It exhibits a gulf between our knowledge of our own inner processes (which is the only reality reflected in mathematical truths) and our knowledge of the outside world, in which observational, rather than deductive, operations are supreme. We can trace many blockings of progress of knowledge directly to the failure to realize that the conclusions of inductive reasoning are only guesses.

'All men are mortal,' goes the first exercise in syllogism; 'Socrates is a man, therefore Socrates is mortal.'

How did we get to say 'all men are mortal?' By observing that Smith has died and Jones has died, and Krishnamurti has died, etc. If 'all men are mortal' is a certainty, then the observation must have included all men, also Socrates. If it did, there is no need to prove him mortal by the syllogism. If it did not, 'all men are mortal' is only a guess, a very good guess, to be sure, worthwhile betting on, but one which can be disproved by a single counter-example.

Many modern scholasticists do not feel that way. According to some of them, the above mentioned observations lead us to a conclusion about an *inherent property* of Man (not just men), *i.e.,* Mortality. This property is inseparably bound up with the 'nature' of Man as the Pythagorean property is bound up with right triangles. This attitude reflects the insistence of metaphysics on postulating the existence of an ultimate reality, 'about' which we are getting bits of partial knowledge. In this reality there 'exist' concepts, categories, and properties, all those things which we ourselves had invented as tools to cognition. To a scientist these ghosts are useless in his work, but many scientists prefer to reserve a fond corner for them much as a sentimental woman keeps her dolls in the attic till her old age.

Most scientists are aware that the value of a language is of the same order as the value of a map. More and more natural science begins to recognize the superiority of mathematics as the language of science. This realization has come simply from the failure of introspective and syllogistic methods of philosophy and from the success of painstaking observations and quantitative descriptions.

Especially to the members of the mathematics department, much of what I have said must have appeared pretty obvious. The members of the English department, however, by whose presence I am greatly flattered, could probably profit well by acquainting themselves with some general principles of mathematics and with some mathematical technique. I understand English classes exist in order to teach people to use the English language. The question arises: 'Why should the English language, or any language, for that matter, be used at all?' I can think of two

answers: (1) To establish bonds among a group of human beings; (2) To establish bonds among all human beings.

Now to achieve (1) language does not have to be a map of any reality. One can invent a most absurd Neverland, and if all the human beings in the group are thoroughly familiar with every feature of that Neverland, a bond exists between them. Such are the languages of savages (primitive and civilized) whose worlds of demons and taboos, unreal as they are, are shared by all the members. Thus, a society can exist based on a common cultural bond, even if there is no reality behind it. But such a society is doomed. Eventually they will come in contact with another society speaking the language of another Neverland, and the language of the first group will be a meaningless jabber to the others, and they will appear as another species to them, to be exterminated. The stronger will destroy the weaker.

If we consider such clashes lamentable, we should try to bring about (2). This does not at all mean that everyone should speak English or Sanskrit or Tamil, any more than it is important what colors are used for topographical and political features of maps. What is important is that the maps should all be of the same country. The question arises: What country? What set of beliefs, cultural values, ethical values, etc.? Perhaps there is an answer. The biological fact that mankind is a single species provides a hope that he can learn to speak the same language. This language will not be a map of this or that Neverland. It will be a *verifiable* language, because it will consist of 'if thus, then so' propositions. In other words, it will be a map of real territories described in operational terms. English teachers no less than mathematicians have a crucial role to play in disciplining languages into becoming instruments of human integration.

Metaphysics, in the proper sense of the word, is dialectical physics, or an attempt to determine matters of fact by means of logical or moral or rhetorical constructions. . . . It is neither physical speculation nor pure logic nor honest literature, but (as in the treatise of Aristotle first called by that name) a hybrid of the three, materialising ideal entities, turning harmonies into forces, and dissolving natural things in terms of discourse.

SANTAYANA, *Scepticism and Animal Faith*

◆

An infantile logic, now happily expelled from physical science, taught that opium put men to sleep because of its dormitive potency. We follow the same logic in social matters when we believe that war exists because of bellicose instincts; or that a particular economic regime is necessary because of acquisitive and competitive impulses which must find expression.

DEWEY, *Human Nature and Conduct*

POETRY AND ADVERTISING[1]

S. I. HAYAKAWA

ONE does not often mention poetry and advertising in the same breath. Poetry is universally conceded to be the loftiest attainment of the verbal arts; its merits are attested to by the wise of all ages. Advertising, on the other hand, is not even an autonomous art; it is the handmaiden of commercial motives; its name carries connotations (well earned, one might add) of half-truths, deception, and outright fraud, of appeals to vanity, fear, snobbery, and false pride, of radio programs hideous with wheedling voices.

There are many more contrasts. The best poetry seems to be fully appreciated only by the few and to be beyond the comprehension of the many. Advertising, however, is considered best when it is laughed over, thought about, and acted upon by multitudes. Poetry is, in the general apprehension, something special, to be studied in schools, to be enjoyed by cultivated people who have time for that sort of thing, to be read on solemn or momentous occasions. Advertising is a part of everyday life.

But poetry and advertising have much in common. They both make every possible use of rhyme and rhythm, of words chosen for their connotative rather than their denotative values, of ambiguities that strike the level of unconscious responses as well as the conscious. Furthermore, they both strive to give meaning and overtones to the innumerable data of everyday experience; they both attempt to make the objects of experience symbolic of something beyond themselves. A primrose by the river's brim ceases to be 'nothing more' because the poet invests it with meanings; it comes to symbolize the insensitiveness of Peter Bell, the benevolence of God, or anything else he wants it to symbolize. The advertiser is concerned with the primrose only if it happens to be for sale. Once it is on the national market, the advertiser can increase its saleability by making it thrillingly reminiscent of gaiety, romance, and aristocratic elegance, or symbolic of solid, traditional American virtues, or suggestive of glowing health and youth, depending upon his whim. This is what the writer of advertising does with breakfast food, toothpaste, laxatives, whisky, perfume, toilet bowl cleaners. Indeed almost all advertising directed to the general public is the *poeticizing of consumer goods.*

Poetry and advertising are similar too in that they invite the reader to put himself in a role other than his own. In reading poetry we identify ourselves with the characters that a poet creates or with the poet himself. In the course of the experiences that a poet puts us through during these identifications, we feel as others have felt, we see as others have seen, we

[1] Paper given at the Sixth Conference on Science, Philosophy and Religion, at the Men's Faculty Club, Columbia University, August 23-27, 1945. Reprinted from the January, 1946, issue of *Poetry: A Magazine of Verse.*

discover new ways of looking upon ourselves in our relationships with fellow human beings. Advertisers also invite us to make identifications of ourselves in new roles, although the roles are simpler, pleasanter, and more easily within reach. Readers are invited to look upon themselves as 'smart housewives and hostesses' (who serve Spam), as 'men of distinction' (who drink Calvert's), as responsible and prudent fathers (who protect their dependents with Metropolitan insurance policies), as well-regulated families (who take Ex-Lax).

The identifications to which poets invite us require some imaginative strenuousness on the part of the reader; those to which advertisers invite us require no more than a disposition to day-dream and the ability to remember a brand-name that is repeated eight times in sixty-five seconds in spot announcements at half-hour intervals sixteen hours a day. In spite of this marked contrast in the demands made upon the audience, both have the common function of entering into our imaginations and shaping those idealizations of ourselves that determine, in large measure, our conduct. 'Life,' said Oscar Wilde, 'is an imitation of art,' and in so far as both poetry and advertising exact this tribute of imitation, they are both, in a real sense, 'creative.'

Let us call this use of verbal magic (or skullduggery) for the purpose of giving an imaginative, or symbolic, or 'ideal' dimension to life and all that is in it, *poetry*. If we speak separately of what are ordinarily called poetry and advertising, let us speak of the former as *disinterested poetry*, of the latter as *venal poetry*, the word *venal* being used in the sense of being available for hire.

Using our terms in this way, we see that our age is by no means deficient in poetry as is often charged. We have more access to poetry (or perhaps we should say poetry has more access to us) than has been the case at any other time in history. One hundred and thirty out of the two hundred pages of each issue of *Harper's Bazaar* are devoted to venal poetry; a similar proportion of poetry to text occurs in most mass circulation magazines. This poetry is written by the highest paid writers in the country, organized into companies of poets, rhapsodists, sub-poets, and sub-rhapsodists, known as 'agencies.' It is supplemented and reinforced by vast amounts of illustration on which the most expensive and most advanced methods of color reproduction are lavished. It is chanted into national hook-ups night and day at the cost of thousands of dollars an hour, and there it is tied into drama, music, satire, humor, social and political discussion, and news. Product and producer it sings—in unending paeans of praise.

None of the corrupt and vain emperors of history exacted of the sycophant poets in their retinues anything like the discipline imposed upon the poets of Procter and Gamble and Ford Motors. The copy-writer is immeasurably more restricted in his choice of subject-matter than a court poet ever was. Moreover, the merit of his poetry is not measured by the pleasure it gives a single patron; it is measured by its influence on sales statistics. Like the court poet, the copy-writer must praise not only his patron, but also the entire socio-economic system which keeps his patron rich and powerful. Milton, attacking the system of literary patronage of his time, was eloquent in his contempt for the 'trencher fury of the riming parasite.' A contemporary prophet able to look into the twentieth century might well have said to him, 'You haven't seen anything yet. Wait until you see the institutional ads of the great corporations during World War II!'

II

Let us turn from venal poetry to disinterested poetry. Mr. Robert Hillyer in a recent article in *Saturday Review of Literature* entitled 'Modern Poetry *versus* the Common Reader' speaks of modern poets as being in a 'welter of confusion and frustration.' He is distressed by the obscurity of their language—'the flight from clarity,' as he calls it. He is certain that both the unintelligibility and the general tone of despair characteristic of much modern verse are due to the moral defects of poets. 'Their confusion,' says he, 'is a sign of artistic effeminacy and egotism.'

Mr. Douglas Bush has said in his paper for the Sixth Conference on Science, Philosophy and Religion, that 'the modern poet is not altogether fulfilling his traditional function. From antiquity up through the nineteenth century, the poet was regarded as a teacher and leader of his age, and nearly all the greatest poets have been more or less popular; they have counted in the general spiritual life of their times.' 'Since the romantic age and the industrial revolution,' he adds, 'the artist has been given to conceiving of himself, not as a normal active member of society, but as a detached, lonely, and hostile observer; and the breach was never wider than it is today, in spite of the poet's concern with the world's ills.'

What is responsible for this condition? It is customary, I should say too customary, to blame the shortcomings of modern disinterested poetry on the poets. A great deal of the critical literature of our times is devoted to scolding poets for their excessive compression of images, their oddities of syntax, and their unhappy states of mind. They are constantly being told to buck up and be men, to utter brave and positive affirmations. Very few poets respond to the call, and those who do are seldom praised, even by those who do the calling.

The difficulties of modern poetry, although often exaggerated, are real. As we have been told, it is due in part to the complexity of the modern consciousness; it is due in part to the lack of a widely accepted and recognized poetic tradition; it is no doubt due in part also to the special threats to individuality offered in an industrial age. In addition to the reasons others have given, I should like to add another, namely, that in a world so filled with the clamor of venal writing (of which venal poetry is only the most offensive example), all poetry has come to sound suspicious, so that disinterested poets are practically compelled not to sound poetic (as people ordinarily understand the term poetic) lest suggestions of venal purpose creep into their writing.

In other words, never in history has it been so difficult to say anything with enthusiasm or joy or conviction without running into the danger of sounding as if you were trying to sell something. I shall not say that it is impossible today to make affirmations in verse about the more or less universal facts of human experience that poetry has traditionally been concerned with. But of the vastly increased difficulty of doing so there can be no doubt, and the difficulty continues to increase with the increasing skill, talent, and ingenuity that are constantly being enlisted into advertising, publicity, and public relations as a result of the material rewards offered in those professions.

It is difficult to describe scenery without sounding as if you were promoting a summer-resort, although past ages have done it without compunction:

> To one who has been long in city pent
> 'Tis very sweet to look into the fair
> And open face of heaven,—to breathe in prayer
> Full in the smile of the blue firmament. . . .

It is difficult to take delight in a woman's beauty without sounding like an advertisement, although it used to be possible:

When as in silks my Julia goes,
Then, then, methinks, how sweetly flows
The liquefaction of her clothes . . .

She was a Phantom of delight
When first she gleamed upon my sight. . . .

It is difficult to become inspired by those facets of American life familiar and dear to all of us without sounding as if you were leading into a message from the National Association of Manufacturers on the necessity of maintaining the free enterprise system. Indeed, it is even difficult to speak reverently of the courage of our soldiers and the debt we owe the dead without sounding as if you were shortly going to remind the reader how much he also owes to Nash-Kelvinator's contribution to the war effort.

In 1940, Mr. Archibald MacLeish in his controversial essay, 'Post-War Writers and Pre-War Readers' (*New Republic,* June 10, 1940), described the younger generation as being 'distrustful of all words, distrustful of all moral judgments of better and worse.' He continued, 'If all words are suspect, all judgments phony, all conviction of better and worse fake, then there is nothing real and permanent for which men are willing to fight, and the moral and spiritual unpreparedness of the country is worse than its unpreparedness in arms.' The condition he described was not as bad as he feared, but there is no denying that to a large degree it still exists—perhaps, after the experience of war, youthful cynicism is even more intense now than then.

But Mr. MacLeish was entirely wrong, it seems to me, in ascribing this youthful scepticism to the influence of the disillusioned authors who followed the first World War: such men as Dos Passos, Hemingway, Barbusse, and Remarque. For every one person reached by such authors, advertisers and publicity men and economic propagandists with goods or ideas to sell reached tens of thousands. The distrust of words does not come from reading writers who honestly state their feelings and convictions, even if those feelings and convictions are extremely gloomy. The distrust arises from long experience with an unending stream of venal poetry, venal speech, venal writing. People are hardly to be blamed, when they encounter so much of it, if they begin to wonder if there is any other kind. The pre-emption by the venal poet of the common value-symbols of our culture, the symbols of courage, of beauty, of domesticity, of patriotism, of happiness, and even of religion, for the purposes of *selling,* that is, of *advantaging the speaker at the expense of the hearer,* has left the disinterested poet with practically no unsullied symbols to work with other than obscure ones hauled up out of *The Golden Bough* or the *Upanishads,* and practically nothing in common human experience to write about except those negative moods that the ghastly cheerfulness of the advertising pages of the *Ladies' Home Journal* has no use for.

The restoration of poetry to its traditional state as one of the most important of the communicators and creators of the values a civilization lives by awaits, therefore, a time when something less than 98 percent of radio time and 85 percent of space in mass-circulation magazines is devoted to selling something.[1] It awaits an

[1] Eighty-five percent is perhaps a conservative estimate of the amount of venal writing in many popular magazines, since advertising by no means stops with the advertising pages. Indeed, *Cosmopolitan,* a Hearst publication, appears quite proud of the fact that its editorial content, including its fiction, is as venal in its intent as its paid advertising. The following is

economic change profound enough to relieve advertisers of the necessity of invoking all the symbols of home, of mother, of the American way of life, of morality, and of the Christian religion in order to sell a box of soap-flakes. It awaits the dissemination of semantic wisdom, which can be equally well given by departments of history, political science, chemistry, English, or home economics as by teachers of semantics, sufficient to restore insight into the often subtle differences between venal and disinterested utterances, between statements rich with meaning and other statements, equally resonant, containing only sound and fury. It awaits a vision large enough on the part of students of poetry to see that the problems of modern poetry are inextricably interwoven with the character of the *semantic environment* in which the disinterested poet is compelled to work, which in turn compels an examination of the technological, the sociological, the economic beliefs and practices that create that environment. In short, it waits the time when students of poetry cease to treat their subject as a separate and isolated discipline and begin to look about them at the worlds of science, of commerce, of journalism, of public affairs, and find out what is going on. Then they will be able to do something more than deplore the state of modern poetry.

quoted from *Cosmopolitan's* advertisement in a trade journal, *Advertising Age:* 'Paul Gallico has just told her a dramatic tale. Pepsi Cola is reaching her at the right moment! Because she's young—she's emotional! She responds easily, quickly, whole-heartedly. . . . And Gallico's fiction is just one example of the kind of brilliant entertainment that crowds the pages of *Cosmopolitan*. Great writing makes great reading. It exercises the emotions. It whets the appetite for gracious living. . . . Good going, Pepsi Cola! You've caught her in an emotional mood. She's just been through the make-believe world of Paul Gallico. She's been living the glamorous life so temptingly traced by Ursula Parrott, Sinclair Lewis and the other great *Cosmopolitan* writers. Emotion makes wars. Emotion makes marriages. Emotion makes SALES!'

A man missed a sum of money. It occurred to him that it might have been stolen by a son of his neighbor. Sure enough, the youth had a furtive manner of a thief, and his expression was sly. Indeed, all his actions and ways marked him as a thief. A little afterward the money was found where it had been washed into a drain. The owner took another good look at his neighbor's son. The youth had neither the manner nor the look of a thief.

LIEH-TSE, 4th Century, B.C.

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Freedom to speak is dangerous when it is separated from the obligation to listen. The value of democracy, with its *ideal* of free speech and 'open-earedness,' lies fundamentally in the provision it makes for efficient communication—for talking *back* as well as down. In a peculiarly basic sense, democracy consists in listening without semantic blockages.

WENDELL JOHNSON, *People in Quandaries*

✰ DISCUSSION ✰

WHAT IS A READING CLINIC?

WORTH J. OSBURN*

FOR THE PAST nine years we have had at the University of Washington a type of activity that we have called an Educational Clinic. We thought we had selected a name that would be fairly representative of the work which we were doing but after reading Bontrager's recent article, 'Reading Clinics Anatomized,'[1] we are beginning to wonder if there is not a serious discrepancy between 'map and territory' somewhere. What we have been doing in reading seems to have little resemblance to that which Bontrager 'anatomizes' in his article. It seems that the name 'Reading Clinic' is multi-ordinal. We had assumed that the term was single-valued but since it is not, we are compelled to find out the different meanings that the name can have. If we fail to do this our writings can hardly rise above the level of jargon.

After several readings of Bontrager's article we are still in doubt concerning just what it is that he is thinking of. Most of the time he seems to be thinking of a school. He uses the words 'clinic' and 'clinical' only seven times as compared to seventeen mentions of school, class, and the like. In the seven references to a clinic we find that a clinic may be a place in which remedial treatment is given to non-skaters. From later references we are led to infer that a clinic is a place in which a pupil's reading cannot be properly evaluated because clinics are not places where a pupil *can* read. Finally we are told that 'we rush the problems off to a clinic where profound case-studies are written and where, with iron gadgets and mechanical engines . . . the sober clinicians act "as if" they could pump life back into them again.' We still do not know just what Bontrager is trying to 'anatomize.'

Under these circumstances we have thought that it is worth while to do a little 'anatomizing' of our own clinic in the hope that other clinic officials will do likewise and so enable us all to understand each other better when we talk or write about clinics. Our clinic operates in two distinct divisions; one is for students in the University and the other is for children. In the division for older students the predominant activity is reading. With the younger pupils we are concerned with spelling, arithmetic, algebra, and English composition as well. For this reason we refer to our project as an Educational Clinic. Our clinic is not a school. Its purpose is to prepare pupils

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[1] *ETC.,* II, 193-202 (Summer 1945).

for participation in school activities later.

In our clinic we cannot subscribe to Bontrager's implied doctrine that the way to learn to read is to *read*. The parents of most of the children who come to our clinic have also believed and acted in accordance with that doctrine. Their children could not read so they insist that they read (study) more. Often there is another child in the family who has had no trouble with his reading. The success of this latter child is used as a club over the non-reader. 'Why can't you read like sister or brother?' Even more deadly is the unspoken language which is easy to read in the face of the parent. Usually the retarded child is no more able to read than he is to raise himself over the fence by his own boot straps. The non-reader is continually driven to find an excuse for his unpleasant condition. Soon he comes to believe that he is 'dumb,' or 'the black sheep of a brilliant family.' Inferiority complexes develop and the child is the victim of vicious semantic poisoning. To expect any such child to learn to read by reading is sheer insanity.

When a child comes to our clinic we get the usual information concerning his address, age and the like. Then we ask him to read in a primer. If he begins to tremble, pulls up his coat collar, sinks into his chair and tries to roll himself up into a ball we assume that we have a child who has been the victim of semantic poisoning. We have found that some children can read well when separated from the parent and cannot read in the parent's presence. Such a child is also afflicted with semantic poison but has succeeded to some extent in spite of it.

Some children read one word at a time and are thus unable to get the meaning of the sentences as a whole. Others find numerous words that they do not recognize. Some are afflicted with reversals. Others read fluently but still cannot remember what they read. None of these are able to learn to read by reading. Each type needs the proper type of clinical treatment before he can participate successfully in class room activities. We believe that it is the function of our clinic to give that treatment individually to one child at a time. This is isolation but it is a kind of isolation that builds morale and generates power.

The type of treatment varies according to the needs of the subject but the nature of most of it can be indicated by the terms 'building a semantic background' or in more ordinary language 'providing readiness experiences.' Bontrager refers rather disparagingly to 'Before We Skate' books covering such activities as perception training, motor co-ordination, understanding of sequences, conversation, and picture study. He must be thinking of a well-known booklet entitled 'Before We Read.' Here we must disagree with him again. We consider 'Before We Read' as one of the best available treatments of the semantics of reading. We believe that reading is a distinct integrative level or zone. We believe also that in learning there are realities analogous with mesoforms. When a child has failed to arrive at the integrative zone called reading on schedule time we are learning how to facilitate his arrival through certain experiences which provide better integration in the preceding zone. Like Bontrager, we do not know what happens inside the skins of our pupils but we do know that something happens and that it enables the child to begin reading. When that happens we and our patrons feel that our clinical treatment has been a success.

Bontrager refers rather adversely to objective tests. We have some sympathy with his view. We use them at the beginning and at the end of the clinic period for the

purpose of measuring improvement in silent reading. In a few cases we find that no improvement has taken place, which means that there are still things about clinical treatment that are as yet undiscovered. In most cases, however, the amount of improvement is very great and even phenomenal for the amount of time spent in the clinic. Sometimes when we have failed we use an Intelligence Test for consolation. So far we have always received that consolation. According to the Intelligence Test the child was 'up to his limit' when we got him. Occasionally standardized subject tests are useful in showing that a pupil who has come to us is not in need of clinical treatment. His mother has been worrying about something that has no existence in the world of reality.

We believe that learning consists largely of growth upward from lower to higher zones of integration. Hence, when dealing with young children we are not greatly interested in the report of Hall and McBroom concerning what adults read and why. The child is not a little man so adult needs apply to him only indirectly. But both child and adult need avenues of self-realization. Reading is one of these. The non-reader lacks social status among his fellows and suffers keenly for that reason. Young children have a strong craving for the vicarious experience which reading can give them. They also want to be like the pupils with whom they associate. To be looked upon as a 'dumbbell' or 'bonehead' by one's associates is a disaster for all but the very strongest at any age. The general function of an educational clinic is to keep such calamities from happening.

Bontrager's article is most interesting and thought provoking. The fact that most of his observations seem to apply to schools rather than to what we call clinics does not detract from the value of what he has to say. What can be found going on in some of our so-called best class rooms is truly amazing. It will be most disappointing if the name clinic gets attached to such things as Bontrager describes in most of his discussion. In the hope of rescuing such a respectable word from such a fate we ask, 'What is a Reading Clinic?'

WHAT, INDEED?

O. R. BONTRAGER*

IT SEEMS that Osburn is in doubt as to what I tried to anatomize. Having succeeded in putting himself in a state of 'doubt,' he then proceeds to 'anatomize' his own clinic in order that we may all 'understand each other better when we write or talk about clinics.'

Despite my serious efforts to determine what it is that Osburn tries to 'anatomize,' I must confess that I, too, am in a 'fog.' This seems to make the 'fog' practically unanimous. Such a state of affairs suggests that Osburn and Bontrager should both get out of the 'anatomizing' business. With all the current excitement about the atom bomb, I thank my lucky stars that I did not 'atomize' the clinics.

Osburn suspects that 'Reading Clinic' is a multi-ordinal term. I assumed that

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students of general semantics have been aware that the term covers a multitude of sins. My efforts have therefore produced some unexpected results. It would appear that even a superficial scanning of the bales of ink-marks that have been loosed by the 'reading' doctors must lead to the conclusion that there is some multi-ordinality in the woodpile. If the 'doctors' have been understanding each other at all, then it seems that an awful lot of ink-marks have been expended per unit of understanding. In contrast, the volume of verbiage on strychnine, sulfa, and penicillin seems small indeed. Fortunately for the patients, the medical doctors have established enough predictability for their ink-marks to save lives.

Perhaps it would help to clear the atmosphere if I suggested that the terms, *'read,'* and *'reading'* are also multi-ordinal. I specifically indicated the sense in which I used the terms. I used the term, 'reading,' following Horn and McBroom, to label the activities in which folks in the world engage when they read, according to the folks' reports. I described in detail a number of situations in which such activities are carried on. I suggested that it would be difficult to find schools or clinics where situations exist in which it is possible for youngsters to engage in 'reading' *as I defined it.*

It appears that Osburn agrees that reading as I define it cannot be found in schools and clinics today. He is 'not greatly interested . . . concerning what adults read and why.' Later he goes on to say, 'It will be most disappointing if the name clinic gets attached to such things as Bontrager describes in most of his discussion.' In this he is not alone, as I tried to show.

What people in heaven or on Mars label 'reading,' I do not know. But I do have a belief that what goes on in schools and in clinics under the label 'reading' should bear some resemblance to what folks *on this earth* label 'reading.' I accepted the Horn and McBroom list of 'reading'-situations-on-earth as the basis of my discussion. If Osburn has an alternative list, I can only say with the old Greek, 'Concerning tastes there can be no dispute.' It might help, though, if he produced his list.

When Osburn argues that 'the child is not a little man,' I believe I follow him, and possibly agree, although I am not sure. However, when he goes on to say, 'so adult needs apply to him only indirectly,' I am in a 'fog.' It would help to dispel the fog if he would describe at least one situation where a child 'needs' a 'reading' 'avenue of self-realization' which is not in the Horn-McBroom list. Then if he can show us specifically what, in such a situation, his clinic can do for a 'problem' child, he would contribute significantly to the elimination of jargon, which apparently both he and I dislike.

Osburn 'cannot subscribe' to what he calls my 'implied doctrine that the way to learn to read is to *read.*' When he uses the word *also,* in the sentence that follows, he puts words in my mouth to the effect that I believe, with some parents, that the solution of their children's 'reading' problems is to 'study' more. This, of course, is precisely what I *do not* advocate. I stated repeatedly that word manipulation is not a test of the proper evaluation of ink-marks. While he talks about 'proper type of clinical treatment,' he at no point describes even *one* type of treatment, so it is impossible to evaluate his counter-proposals.

I have seen and dealt with hundreds of individuals, most of whom exhibit some of the symptoms Osburn describes as 'victims of semantic poisoning.' On this score we agree. Osburn, however, seems

primarily interested in getting the poison out of the victim, possibly a necessary step in some instances. In contrast, I am interested in eliminating the source of the poison. If the family is being incapacitated by lead poisoning, no amount of looking for the poison in the patients will save them if the source of the poison is in the plumbing.

It is possible that the chief source of the 'semantic poison' of which Osburn speaks is the gobbledygook (with apologies to Maury Maverick) that emanates constantly from our schools and clinics, 'reading,' educational, psychological, psycho-educational, and otherwise. For example, when Osburn speaks of 'inferiority complexes,' I am not sure what part of the child is 'inferior' or which part is 'complex.' I have never been able to understand just what is 'afflicted' when some are 'afflicted with reversals,' or what is 'reversed.' I can think of no more pathetic spectacle than a mama who believes that Willie is 'afflicted' with reversals. I am not clear as to what is happening when 'children read one word at a time.' Is 'read' a descriptive term in this situation? What children are unable to 'get' when they are 'unable to get the meaning of sentences as a whole' is likewise a mystery. Continuing, what is it that is 'built' when we 'build morale,' and what is 'generated' when 'isolation . . . generates power'?

When Osburn states that 'each type needs the proper type of clinical treatment,' it would help eliminate jargon if he would give scientific clinical descriptions of types and corresponding treatments which would meet as rigorous tests of predictability as physicians demand when they talk about blood type, pneumonia type, etc. Unless conditions have changed in the past three years, a new reading 'type' is born every minute. The only limiting factor seems to be the size of the Thesaurus. Yet every new set of ink-marks announces an increase in the number of reading 'problems.' *What are these types of which he speaks?*

I am aware of no parallel to current exhibits of arrant sophistry which differentiate between 'teaching' 'reading' and providing 'remedial treatment' in 'reading.' If curriculum committees, authors of books for children and teachers, 'reading' experts, etc. have produced techniques for teaching an individual to 'read' in a clinic, or in a 'remedial' room in a school *after failure*, then it is not impertinent to ask why such techniques were not used to prevent failure *in the beginning*. If the premises of the clinical 'authorities' are correct, then it appears that our clinics should treat teachers, parents, clinicians, etc., instead of youngsters.

If Osburn's clinical cases learn to 'read' without reading, then they do. I can only echo the proverbial parrot who said, 'This I *must* see.' I wonder, though, exactly what it is that his cases learn when they learn to 'read' without 'reading.'

While I did not mention 'Before We Read,' a booklet by this name, as well as a number of others based upon outmoded notions of transfer of training and faculty psychology, are widely used to 'provide readiness experiences.' I do not know how valuable they are. We have no scientific data which establish the validity of the claims made for such booklets. Sulfa drugs and penicillin have cut the death rate in pneumonia. I find no evidence that pre-reading prints are performing a parallel function in 'reading.' As for providing the 'readiness experiences' which Osburn mentions, it is not clear how *pictures* of kittens, fish, goats, hens, etc. can provide *experiences* with nonverbal kittens, fish, goats, hens, etc. One fishing trip should make this clear. If

Osburn can cite the evidence that establishes a positive relationship between (a) tracing an outline of a dog with the finger, beginning with the nose on the left and ending with the tail on the right, or (b) find what is missing (monkey's tail), or (c) etc. *and* 'reading,' then I am ready to welcome faculty psychology back into the fold again. Should he deny that pre-reading books are based upon assumptions of faculty psychology, I ask him to select any one of these books, take each exercise, indicate the assumptions on which each of the exercises *is* based, and supply the substantiating experimental data. His statement, 'there are realities analogous with mesoforms,' I confess, leaves me flabbergasted. I simply do not know what is analogous with what. As for the 'integrative levels and zones,' I suggest that one picture here would be worth a thousand words. The Scotchman, confronted with these ink-marks, would probably say again, 'If the man who is listening doesn't know what he is talking about, and if the man who is talking doesn't know what he is talking about, hoot mon! that's metaphysics.'

Space does not permit extended consideration of many of the issues Osburn raises. He indicates that he looks to intelligence tests for consolation in certain cases. Such practices of self-consolation seem to be common. But how much consolation can be derived from the results of so-called intelligence tests when leading 'reading' authorities report that the relationship between intelligence and 'reading' test scores averages .60? A scatter diagram representing the relationship, $r = .60$, does not seem to me to offer grounds for such sustaining consolation. Furthermore, since the assumption is made that a pupil's performance in tying shoestrings, or arranging eight wooden beads in a given order, etc., somehow indicates how well that individual can read, I cannot see how knowledge of such performances should 'console' anyone.

Unfortunately, much that I have said does not uphold the dignity of such a respectable word as 'clinic.' The term is indeed 'respectable.' Webster indicates its ecclesiastical origins as follows:

> CLINIC. 2. *Eccl. Hist.* One who received baptism on his deathbed or postponed it until then, believing that sins committed after the reception of this sacrament could not be atoned for.

Perhaps if we can agree on the answer to the question, 'What is reading'? and if we can subject the clinical 'pedagese' now in circulation to the test of extensionalization, many of the 'problems' which now beset us will vanish away. I am sure that neologisms will solve no 'reading' problems, even when they are invented by well-meaning people.

Not yet.

MOTHERS AND PEDIATRICIANS

BETTY LEE JACOBS *

WHEN MY baby girl was four months old, I was told by my pediatrician that she was not gaining 'as she should.' (She was gaining three-fourths to one pound a month.) I was urged to wean her. Since she was not coming up to his standard of expectations, it was logical to suppose she was not getting enough milk, although she

* Denver, Colorado.

did not seem dissatisfied between her feedings. I changed to the bottle very gradually. She liked the bottle sometimes, but sometimes she refused it entirely, pushing the nipple out of her mouth. She did not gain any better or eat more with the bottle.

To make up for the small amount of milk she took, I pushed the solids so that the quantity of food taken by Lee would fit my expectations of the amount she needed. In so doing my attention was on my set of expectations as to what she needed, and not on the life-fact, the child. So I forced the food. Very frequently Lee vomited. The doctor then ordered pheno-barbitol to prevent her vomiting.

Thereupon I made inferences that there must be 'something seriously wrong.' I imagined many possibilities which started me to worrying further. I feel sure I put the pediatrician off the track, convincing even him that there was 'something seriously wrong.'

Instead of going back to the life-fact, the child, to see what were the facts with regard to her eating, to investigate whether the food was too rich or too much in quantity, I delved into my imagination for the 'causes.' This, of course, made matters worse. The pheno-barbitol didn't eliminate the vomiting. Then another factor entered the picture: Lee started holding her food in her mouth, a definite sign of not wanting her food. From this, I made even more alarming inferences. It was 'not natural' for a child to refuse food, I reasoned; a naturally healthy child always wanted her food, I thought.

Since no progress was being made, I worried more and more until I got into a very serious state of nervous tension. My own physician said that I would have to go on a trip to get over my condition.

It happened that on the trip I described Lee's condition to a medical friend who suggested that perhaps the baby's vomiting might be due to an overloaded stomach or to a rich diet—that probably nothing serious was wrong.

I returned from the trip determined not to worry but to investigate the facts, and to react to the facts and not to my inferences and flights into imagination. Following my medical friend's suggestion I offered less food and less rich food until Lee became hungry and *wanted* her food—the wanting of her food being the important factor.

It is easy to see now, looking back, that I was dealing with my own inferences and judgments about the situation rather than with Lee; it is easy to see now that I was overloading the child. I was attaching the label, 'something serious,' and was reacting to my own verbal reactions! This, I believe, is what many of us mothers do when we worry.

To my great joy Lee became hungrier and hungrier and wanted her food. In fact, suddenly, she commenced taking her bottle and drank all eight ounces down at once. She also wanted her solid foods. She began gaining steadily.

II

I often hear among the group of young mothers I know such anxious statements as these: 'No, Larry doesn't walk yet, but he is trying hard. I know he should by now and I try to teach him, but it doesn't seem to help.' Or another, 'I don't know why Mary isn't talking yet. We talk to her a lot and even make the sounds slowly so she will get them, but she only babbles.' Or another, 'I *wish* Jimmy would crawl.' The characteristic tone of worry accompanying all these statements reveals the fact that the child is not living up to the *set of expectations*

or creeds which the mothers hold in their minds.

It is easy to understand why mothers often get frustrated and full of worries. It is because they formulate these creeds or expectations, or whatever you want to call them, and when the child doesn't fit them, they begin to worry. They build up worries and tensions which affect the mother-child relationship and the entire family. These worries can prove very serious. Often the worries develop into nervous disorders or physical disturbances; such things as insomnia, extreme irritation, and nervous indigestion may be the result.

If a child does not eat according to a mother's expectations, the mother worries and often tries to push more food down. If a child does not walk at the 'usual' age or does not talk as soon as expected, then frequently the mother unconsciously tries to exert pressure to 'help' the child to meet her own expectations or the doctor's expectations. Often this pressure takes the form of anxiousness to encourage the child, trying to show the child how to crawl, how to walk, how to talk. After repeated walk or talk, the mother's anxiousness increases and a note of worry comes into her voice. 'Come on now, Janey, walk to mamma. Come on, Janey, come to mommy.' Children are very sensitive to the feeling-tone of their mother's words; they sense the mother's anxiety and tension, and in turn often become tense themselves.

III

There has been a great deal written in recent years on how to raise children. Pediatricians have made tremendous gains in knowledge. As a result of this much needed knowledge, generalizations about 'what to expect' of our infants have been widely circulated. The mother, on reading or hearing of these generalizations, such as, 'at three years a child should be entirely toilet trained' often interprets this statement literally. She holds this expectation in her mind and holds the words up to the child: 'Billy, you are three years old now and the doctor says you should be dry all night and all during your nap. If you wet your bed, we will have to call it *enuresis* after this. Now you must not wet your panties or your bed any more.' The mothers is holding this *generalization* up as *the* important thing instead of regarding the *child* as the most important. She is looking at the words first and the facts (the child) second. The mother tries to fit the child into the word-picture of the doctor without looking first at the extensional fact, the child, and investigating the child's readiness to be a dry boy. Since these generalizations have been made known to mothers, many a mother has been struggling to fit her child into the generalization, that is, to fit the child into a rigid set of expectations.

Indeed, the generalizations made by pediatricians are very necessary to point the direction; but a mother knows her particular child much better than does the pediatrician. These generalizations mean 'in general,' and that, I feel certain, is the way the pediatricians want us to interpret them. Instead we mothers often try to apply the generalization literally to our child.

Obviously mothers need the generalizations made by the pediatricians in order to know their way, to know the usual progress of development in other children, and to be able to recognize serious deviations from the normal. We need the generalizations, in order to know how to train our children. Nevertheless, we must at the same time remember the *generality of the generalization;* we must re-

member that generalizations apply to *children in general,* and not necessarily to a specific child. We must focus our attention then, not on generalizations, but on $child_1$, $child_2$, etc.

Mothers need not only books, magazines, and medical advice on the care of their children. They also urgently need general semantics in order not to misevaluate pediatric information.

A MEANING APPROACH TO COMPOSITION

EDWARD J. RUTAN
ENGELBERT J. NEUMAYER[1]

ONE CONSTANT demand in the schools is that pupils be taught to write effectively. In spite of the effort already expended, and the varied methods already employed, we are not meeting these demands. It may well be that all of our methods, new ones and old ones, have the same basic fault: they assume that composition is a game you play with words; whereas it is truly a facing of facts and a grinding out of thoughts. We have placed grammar and rhetoric first. We ought to have put *meaning* there!

One method that has proved successful is to have the pupils write only very short compositions at first. If they achieve success in saying exactly what they mean in a limited sphere, they will soon reach the point where they can write longer compositions meaningfully. This gives them only one problem at the outset—the problem of achieving meaning—instead of nine or ten problems. And if their attention is focused on what every sentence says and means, technical errors will be held to a minimum. One device is to present a list of ten or twenty subject bases and to challenge the pupils to see what stories they can make with them.

Here is a short sample list:

1. *the crowd at the skating rink*
2. *a cute girl in a short red skirt and white blouse*
3. *all of the fellows*
4. *the ones who could skate fast*
5. *turning in surprise, she*

Each pupil is required to make complete sentences out of these subject bases and to make each sentence say something that will advance the action and the interest set up in the previous sentence. Each pupil's story will be different. The stories can be discussed by using these questions: (1) Are there any sentences that do not say anything? (2) Are there any that do not fit the story? (3) Do the sentences finish the idea they start with? (4) Are there any errors which make the sentences meaningless, or make them confusing to read?

When the teacher checks each paper, he indicates where errors have been made; he does not make the corrections for the pupil. When the papers are returned, each pupil corrects his own errors. He thus realizes that he must always say what he means, and he becomes aware of errors he has been unconsciously making up to this time. Later, when the pupils

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have become more proficient in the correction of errors, the teacher need indicate only the sentence, and then only the paragraph, in which an error appears. This demands of the pupil more careful reading of his own writing, and stimulates an alertness to say what he means.

Another device is to start with one sentence, which each pupil expands into a paragraph or a longer story. Here again, each pupil must see that his story, springing from the same sentence as his neighbor's, is so written that the idea *he* got from the sentence is so clearly expressed that the difference between his and his neighbor's is evident to all who read them.

Here are some sample sentences for this kind of assignment.

1. *She walked past several times before she went in.*
2. *Steve pushed harder and harder, but it wouldn't budge.*
3. *Sure, he thought, no one need ever know.*
4. *It was one of those nights when you just couldn't go to sleep.*
5. *You'll never, never come again?*

In working out this kind of an assignment for the first time, it is helpful to have each pupil choose the *one* sentence from the complete list that he wants to develop. He can then give a preliminary explanation of an experience that particular sentence brought to mind. Thus in telling about it orally, pre-testing it before the class group, he can make a good start at organizing his thoughts before he actually begins his writing. Naturally the rest of the members as well as the teacher can make suggestions, even to the extent of pointing out that he ought to select another sentence which would come closer to his actual experience. In this way the pupil will not only be writing from his own experience, but he will come to understand and appreciate the importance of context in reading and writing.

By starting with one word, like *Help!* the pupil can also build up a composition by developing the associations he has with that word. The pupils offer sentences giving situations suggested by the word *Help!* such as: 'The child was trapped in the burning building,' or 'The exhausted swimmer was going down for the last time.' The class discusses their possibilities. Each pupil selects any one sentence and expands it into a paragraph that expresses clearly to the class the idea suggested to him by that particular situation. Questions can be raised about what further things could be said to make the situation still more complete, such as: (1) What happened *before* this paragraph? (2) What happened *after* this paragraph? And so the next step is to expand any one paragraph into a complete story of several paragraphs.

Another procedure—still with meaning uppermost—points toward the various forms of writing. Here are some samples.

1. Autobiographical writing:

We do not realize, sometimes, that the story of our lives would be well told in a mere account of the things we remember most readily. They are the events that have made us what we are.

2. A news article:

No one questioned knew exactly what had happened. There were several different versions, and no two of them agreed. A complete investigation remains to be made.

3. Letter writing:

We must inform you again that the

library book you borrowed is overdue. Unless something is done immediately we will be forced to take action. The library trustees intend to settle this matter without further delay.

4. A fiction story:

Believe it or not, I saw his hat go up, and then he *went up, and finally the box on which he had been sitting. The City Hall even took off; in fact, everything did. It was worse than the blizzard of '88, the day that gravity left the earth.*

With any of these, the pupil will gain immeasurably in finding something at which he can succeed, and which will at the same time sharpen his mind and improve his ability to use language effectively. When composition is taught from the point of view of meaning, the pupils come to recognize the importance of precision and correctness. An immediate outcome is the disappearance of slipshod carelessness in writing, and of the many faults and weaknesses that carelessness has bred in the past.

WHAT ARE 'RIGHTS?'

VICTOR RUBIN *

IF YOU HAPPEN TO own a large block of stock in Montgomery, Ward & Company and hold an unshakable belief in the 'constitutional right' of American citizens to work in open shops at lower wages—in which event how do you happen to be reading *ETC.?*—you can readily start your blood pressure climbing by listening to some 'liberal' expound the Roosevelt 'Economic Bill of Rights.'

On the other hand, if you happen to be tagged as a 'liberal'$_{1940}$, who believes in the 'Century of the Common Man,' you can achieve this same result by listening to your 'reactionary' neighbor explaining why a federal anti-poll tax law constitutes a death blow to 'states' rights.'

A given group of good Americans, particularly if they have never learned to check their signal reactions, may choke in unison at the Statue of Liberty, the Liberty Bell, the Declaration of Independence, the Constitution, and other accepted symbols of 'liberty.' Yet they fight like cats and dogs as to whether: (a) The Associated Press has the 'right' to withhold its services from Marshall Field's Chicago *Sun;* (b) the federal government has a 'right' to develop electric power and distribute it among residents of the Missouri valley; (c) Smith_1, who is classified as a 'Negro,' is 'free' to ride in a street car beside Smith_2, who is classified as a 'Caucasian'; (d) whether Smith_3 is protected by his 'democratic liberties' from molestation when he verbally attacks those 'democratic liberties.' These illustrations could be multiplied indefinitely.

The Symbols of 'Liberty'

In an effort to ferret out the comparatively early and simple relationships —the second and third order abstractions —now hiding behind the ample skirts of the highly abstract Goddess of Liberty, the writer recently had occasion to re-examine some of our most highly re-

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spected national symbols.[1]

It soon became apparent that the terms 'rights,' 'liberties,' 'freedoms,' etc., have held widely different 'meanings' in different parts of the globe, among different groups of *anthropos erectus,* and at different historic periods. Sir John Maine, in his classic *Ancient Law,* for instance, traces individual 'rights' as recognized in Western Europe back to those specific privileges conferred by *dicta*—or authoritative utterance—by the head of the primitive family. Since that remote era when what papa—or other presiding male—said was 'right' *was* 'right,' to such modern declarations as the 'Four Freedoms' and the 'Economic Bill of Rights,' untold Smiths and groups of Smiths have defined and re-defined these terms. There have been as many kinds of 'liberty' proclaimed as there have been inhibitions (legal, economic, social, psychological) from which men or women at different times have desired to be liberated.

The 'liberty' referred to in the famous passage from *Leviticus* which is inscribed on the Liberty Bell—'Proclaim Liberty throughout all the land,' etc.—refers to 'liberty' from slavery and from alienation of land. Strangely enough, although the Liberty Bell was rung to announce the adoption of the Declaration of Independence, the 'liberty' inscribed upon it seems to have been as far from the minds of the Founding Fathers as the Declaration of Independence was from the minds of the ancient Hebrews.

Freedom from slavery first appears as a constitutional guarantee in the Northwest Ordinance of 1787. But, of course, it was not extended to all the states until the adoption of the Thirteenth Amendment in 1865. If there ever was current in revolutionary North America a belief that land should belong to the state, to be held only by lease to revert every fiftieth, or Jubilee, year to the state for redistribution — as proclaimed in the Biblical injunction—the fact has been carefully concealed. Neither could the writer discover that any such practise had ever been adopted by the People of the Book.

As for that other great symbol of American 'liberty'—the Statue of Liberty, which was presented to the people of the United States by a committee of French citizens shortly after the Franco-Prussian war—the World Almanac gives its 'meaning' as 'Liberty based on Law.' In this case, the 'Law' is represented by a book, labeled 'July 4, 1776,' which Liberty carries in her left arm, pressed against her side. As a matter of fact, the first ten Amendments to the Constitution, which comprise our so-called 'Bill of Rights,' were not adopted until 1793—seventeen years later than the date symbolized.

At the time of the American Revolution, in fact, not a single one of the thirteen states included in their constitutions even all those 'civil liberties' defined in the first ten Amendments to the Federal Constitution. In 1776, for instance, Catholics and Jews were excluded from suffrage in the state of New York, while Virginia, Massachusetts, New Hampshire and Connecticut all had established churches.

In short, the good people who erected the Statue of Liberty in 1884 apparently impressed their current attitudes, notions, postulates, theories, etc., concerning 'liberty' and 'human rights' upon a symbol supposed to represent the legal theories of 'liberty' of a period they had long since outgrown.

[1] See 'Civil Liberties in Wartime,' particularly pp. 23-27, *Chicago's Law Year, 1944.* Report of the Department of Law, City of Chicago.

Our Debt to Magna Carta

In this connection, it is interesting to note that the chief 'civil liberty' in the modern sense referred to in Magna Carta, which is generally regarded as one of the great sources of Anglo-Saxon 'freedom,' is the right of trial by a jury of one's peers. Most of the other privileges wrested, at least on parchment, by the barons from King John, have little to do with what we regard today, or even with what was regarded in the time of George Washington, as 'civil liberties.' In fact, a perusal of the document shows clearly that most of the celebrated argument was concerned with appointments, benefices, and other perquisites of office which today would be ticketed as 'political patronage.' Noteworthy, too, is the fact that in specifying a jury of one's 'peers,' Magna Carta guaranteed that a nobleman would be tried by noblemen of his own rank, a commoner by commoners, etc. In feudal England the idea of democratic equality was yet to be born and a person's 'rights,' like his duties, depended on his status.

It was not until 1780 that Massachusetts rejected religious tests for office holders; Virginia followed suit in 1785. Moreover, the statute books indicate that Arkansas, Delaware, Maryland, and Pennsylvania still restrict office-holding to persons who believe in God.

Only three states, Virginia, Pennsylvania, and Massachusetts, had adopted Bills of Rights before political independence had been won from Great Britain, and these Bills of Rights guaranteed only free expression of opinion and freedom from abuses of the criminal laws as practiced by tyrants.

The Articles of Federation, adopted in 1778, proclaimed citizenship for 'free inhabitants' (*i.e.*, non-slaves) of each of the states, and guaranteed freedom of 'ingress and egress' (that is freedom of movement from state to state). The sole other reference to 'freedom' consists of the guarantee of 'freedom of speech and debate in Congress' from impeachment or questioning in any court or place outside of Congress.

The Ordinance of 1787, which is often referred to as a palladium of civil liberties, guaranteed that 'no person . . . shall ever be molested on account of his mode of worship, or religious sentiments.' It likewise guaranteed the writ of *habeas corpus*, trial by jury, proportionate representation, judicial proceedings according to common law, bail except for capital offenses, moderate fines, freedom from cruel or unusual punishments, full compensation for property taken by the state, and freedom from slavery. None of the 'freedoms' of speech and the press, however, are included except as these are covered by the guarantee against molestation on account of religious sentiments.

The Federal Constitution itself, as has been pointed out, contained no Bill of Rights until enactment of the first ten Amendments in 1793. The Federalist Papers, which undoubtedly offer the best contemporary interpretation of what the Constitution 'meant' to the people who wrote it, in fact, contain forceful arguments of the time *against* adopting a Bill of Rights.

By analyzing every use of the words 'liberty,' 'rights,' 'freedom' and similar expressions in its particular context in the Federalist Papers, it is possible to find an unmistakable clue to what the Founding Fathers 'meant' by 'civil liberty.' Their 'liberty' refers to freedom from tyranny—from the oppression of a monarch (*e.g.* King George), a ruling class, the military, and other agents of government. In addition to the ancient common law rights of *habeas corpus* and trial by

jury, the people who wrote the Constitution were concerned with protecting the lives and property of the individual Smiths and Joneses from the potential acts of tyranny of the government they were establishing. In extending this protection to all citizens, without regard to their 'social,' 'political,' or 'economic' status (except in the case of slaves), they took a long step forward from the ancient postulate that 'rights' and 'privileges,' like duties and obligations, are fixed by one's status in the social order, from king to serf.

None of these various theories of 'liberty' which are embodied in the Constitution, it must be remembered, are to be logically identified with those socio-economic goals and affirmations—often desirable—which we sometimes label as 'rights,' 'liberties,' and 'freedoms,' but which have not been enacted into laws or formulated as official interpretations of law by our higher courts.

The Conflict of 'Liberties'

Because the label 'liberty' may be applied to the various ineffective desires of various Smiths and groups of Smiths as well as to various statutes, rules of law, etc., enforced by agencies of government, these 'liberties' are often confused. This confusion occurs whenever one attempts to equate 'liberty$_1$' (which may be defined by the entire body of statutes and court decisions affecting, let us say, the 'right' of 'copyright') with 'liberty$_2$' (which, say, expresses the notion of citizen Brown$_1$ that 'everybody ought to have a job') or 'liberty$_3$' (the sentiment reportedly accepted by large groups of Smiths in China that every maiden reaching the age of 18 is entitled to a husband).

Besides this confusion between the different 'liberties' on the same level of abstraction, there occurs the confusion between these 'liberties' and various higher-order 'liberties,' including one lofty overall 'Liberty' usually associated with the Declaration of Independence, the Constitution, the Bill of Rights, the Statue of Liberty, the Liberty Bell and other current symbols.

Pareto, in his monumental treatise on social psychology, shows how 'historians,' 'philosophers,' and other interpreters of social phenomena invariably combine historical facts in accordance with some currently accepted rationalizing theory or generalization. According to these various interpretations, 'liberty,' 'human rights,' etc., have been and are still explained as coming from God, from the operations of divine law, natural law, right reason, the social compact, the will of the people, science, the class struggle, the welfare of the state, etc.

One need only read our five-to-four decisions in the United States Supreme Court with their vigorous and often violent dissenting opinions; one need only listen to a radio commentator discussing 'Russia and World Peace,' or read the essays of our current editorial writers, to realize that all these various social-legal theories from religious fundamentalism to the latest official interpretation of Marxism are at work simultaneously in the Republic. History and social theory are being constantly re-evaluated and re-interpreted to fit into these changing logical formulas in an ideological free-for-all.

More than one writer who believes in a 'fixed meaning' of 'liberty' finds himself confused by such apparently paradoxical facts as the persecution of religious non-conformists by the Smiths$_{\text{series 1632}}$ who fled England because *they* had been persecuted as non-conformists by the conforming Smiths. The freedom of worship sought by the Pilgrim Smiths, alas, merely

'meant' the 'right' or 'liberty' to worship as the Pilgrim Smiths desired, including the 'right' to prevent non-Pilgrim Smiths from worshipping in non-Pilgrim ways.

One unfortunate effect of this notion of an absolute 'Liberty' is to set honest folk off on will-o'-the-wisp searches for it, after the fashion of Eric Bell's search for 'truth' or the quest for the Holy Grail. Of course, they never find it. Another unfortunate effect is to inhibit American citizens from coming to grips with such lowly facts of life as the inadequate housing of $Smith_1$, labeled 'Negro,' or the need for amending the local handbill ordinance.

In a world of change, it is necessary for us to insist on enforcement of the legal 'rights' we favor and on the enactment of further legal 'rights' we desire. Whatever our individual program of 'rights,' 'liberties,' etc., we may be sure that it is bound to conflict at numerous points with the programs of other groups and individuals and that no possible combination of 'rights,' 'liberties,' 'freedoms,' etc., can ever fit under the lofty universal label of 'Liberty,' and suit everyone, this side of Cloud-Cuckoo-Land.

Labels Versus Facts

Because many Smiths and Joneses mistake the label 'liberty' for the millions of life-facts and human relationships that label covers, they are prone to scoff at the Constitution and our government for failing to guarantee some sort of ideal or absolute 'freedom.' To paraphrase Alexander Hamilton, it would take a government of angels to guarantee every Smith (from $Smith_1$ to $Smith_n$) complete 'liberty' from that infinity of acts of tyranny and oppression which the various other $Smiths_{1, 2 \ldots n}$ are capable of imposing upon one another. The principal function of our Constitution and the Bill of Rights, as the Founding Fathers have recorded their desires, is to protect the various Smiths from acts of tyranny on the part of agents of the government by limiting government power.

Compared with the 'civil liberties' we enjoy today, even in wartime, the oft-vaunted 'rights' of our forefathers appear meager indeed. The Bill of Rights, the Civil War Amendments, the Woman's Suffrage Amendment and a series of landmark Supreme Court decisions have multiplied the 'liberties' our forefathers won and are supposed to have won in 1776. The old theory of status has given way generally to the widely accepted theory of 'equality of opportunity.' In no previous war have the potential tyrannies of federal government been so firmly kept in check.

On the other hand, rigid federal laws restricting immigration have all but obliterated the 'right' of asylum still verbally affirmed on the base of the Statue of Liberty in the immortal—if now unheeded — words of the poet Emma Lazarus:

> 'Give me your tired, your poor,
> Your huddled masses yearning
> to breathe free,
> The wretched refuse of your teeming
> shore,
> Send these the homeless, tempest-
> tossed to me;
> I lift my lamp beside the golden
> door.'

The Goddess of Liberty still lifts her lamp beside the golden door, but she turns an heroic shoulder against the wretched, the homeless, and the tempest-tossed.

As might be expected, the interpretation of 'liberties' varies from one section of the country to another in accordance

with state laws, local ordinances, traditions, social theories, individual attitudes, prejudices, postulates and functionings of the digestive processes. For instance, while a sheriff in one southern city was administering castor oil to one of Jehovah's Witnesses, the Corporation Counsel of Chicago was delivering the following excellent pronouncement on the subject of 'civil liberties' in an official opinion to the Commissioner of Police. This opinion held that distribution of a handbill captioned 'Appeal for Uncommon Sense,' which called for 'an immediate armistice on all fronts' and 'a negotiated peace now,' did *not* violate the handbill section of the Municipal Code of Chicago. The following excerpts may be of interest to students of general semantics:

'Of themselves published words, doctrines or opinions are no more to be regarded as disturbing the peace than is a bit of metal or chemical compound, which might conceivably be fabricated into a bomb, to be considered as a bomb. Particularly, in time of war, when nervous systems are subject to unusual strains, must we be vigilant that we do not mistake these bits of metal for bombs and thus divert energy needed to winning the war into hunting witches or suppressing ghosts. . . .

'Although the City . . . has no right to suppress the handbill in question, persons who disagree with its contents have the constitutional right, if not the actual duty, to combat words with words, ideas with ideas, and doctrines with doctrines. Free discussion—in the form of printed literature, in the form of speeches before groups peaceably assembled and over the radio—is the proper, the constitutional method of combating ideas with which we disagree, including doctrines which are repugnant or hostile to the very process of government which protect their propagation.'

*GENERAL SEMANTICS AND FEAR**

S. I. HAYAKAWA

I SHOULD LIKE TO emphasize at the outset that general semanticists, insofar as they constitute a 'school of thought,' have no unique theories about fear, how it is caused, how it manifests itself, how it is dispelled. If we have anything at all to say about fear, it is only in relation to a more general problem, namely, the way in which the lack of semantic wisdom, in addition to multiplying our confusions, also multiplies inordinately the number of fears we may experience. None of us need to be concerned about the fears people have when there is something to be afraid of. We are concerned with people who are afraid when there is nothing to fear. Insofar, then, as I can tell you how lack of semantic wisdom contributes to the multiplication of *needless* fears, I believe I shall be making a contribution to our round-table discussion.

I have used the expression 'lack of semantic wisdom.' It is one that needs much clarification. A semantically well-adjusted person would know (and by 'know' I mean that it would be drilled into his reaction-patterns rather than merely memorized as a verbal formula) that the visual abstractions he makes as he looks around his world are clues, and clues only, to the structure of the facts. While, as an empiricist, he tends to fol-

* Paper given at a round-table discussion of 'Fear' before the Individual Psychology Association, Chicago, January 5, 1945.

low the axiom that seeing is believing, he will also have deeply ingrained in him the knowledge—and this is Whitehead's expression — that he is a good deal better at believing than he is at seeing. He will know that the way in which he grasps the world with his senses is the result of training; he knows that other ways of grasping the world and seeing fewer, more, or different aspects of situations are possible; he is aware that the abstractions from reality by means of which he steers himself around in the world are merely abstractions.

The semantically well-adjusted person also knows that pictures or photographs or other symbolic representations that stand for the facts are not the facts themselves. Also deeply ingrained in his nervous system is the difference between symbol and thing symbolized, so that he will not begin to drool at the mouth at the colored picture of a ham with raisin sauce in a *Good Housekeeping* magazine advertisement, nor be aroused sexually by a Varga Girl in *Esquire*. To be sure, the pictures would arouse *some* reaction in him, for I do not wish to convey the impression that the semantically well-adjusted man is a catatonic; but his reactions to pictures, movies, statues, and other symbolic representations would be necessarily of a different *order* from his reactions to the living facts which those symbols might represent.

Furthermore, the semantically well-adjusted person does not react to words as if they were the things the words stand for. If, for example, someone were to shout 'FIRE!!!' in this room right now, some of you would investigate if there is fire, where it is, how best to get ourselves safely from the building, and behave calmly throughout. Some few, semantically ill-adjusted, would react to the word 'fire' as if the flames were already licking at their feet, and promptly have hysterics. Some others, also semantically ill-adjusted, would respond to other people's hysterics by having hysterics themselves—again confusing a sign of danger with danger itself.

To take further examples, the semantically ill-adjusted is one who puts as much or more weight on words than on the things or situations described by the words. You are all familiar with the fact that nausea and vomiting can be induced in some people by simply the *verbal* description of foods that they think disgusting to eat or of surgical operations that strike them as especially gruesome. You are familiar with such stories as that which appeared in the Chicago *Sun* the other day telling of the night watchman who accepted in place of a raise in pay what might be called a 'semantic promotion': his title was changed from night watchman to 'night superintendent.' (College professors often get that kind of raise, from 'assistant professor' to 'associate professor' with no change in duties or in salary; it keeps a surprising number of them happy.) You are familiar with the fact that there must be millions of people who apparently respond uncritically to radio commercials that say nothing: 'Ex-Lax, not too strong, not too mild, but JUST RIGHT!' Then there is so-called 'race prejudice': the girl who found a young man completely captivating and charming but dropped him like a hot potato when she heard that the word 'Jew' could correctly be applied to him. In other words, for such people, the unfavorable connotations of a word like 'Jew' are a *bigger* experience than the hours or days of months of pleasant contact with the event to which the word is applied.

At a slightly more sophisticated level, there is the day-dreamer or the pseudo-philosophical system builder. The schizophrenic substitutes a symbolic (*i.e.*, dream) world, and adjusts himself to that, instead of to reality. The pseudo-philosophers and cultists substitute a verbal description of the world, most of their terms being without factual content, for the world itself; they live in terms of creeds, definitions, dogmas, metaphysical abstractions of a thousand kinds, instead of by the facts. In both cases, it will be noted, adjustment is made to symbolic systems rather than to the life-facts. In both cases, if the symbolic systems depart far enough from the structure of the facts, we are confronted with what we ordinarily call behavior problems.

In all these cases of semantic malfunctioning such as I have described, and I have merely sketched crudely a small fraction of the possibilities, there is one element in common, namely, the lack of awareness of the *limitations* of words, pictures, or other symbols and signs. Let me stress the notion of limitations. To be capable of believing that 13 is an unlucky number, one must first of all be unaware of the *limitations* of number. The notion that an accident of arbitrary systems of nomenclature that results in a hotel room being designated by the number 13 is capable of causing misfortunes to people who occupy that room can exist only because many people have never been taught *how little* numbers mean. Similarly, to be capable of reacting violently with fear, love, hatred, nausea, etc., to visual representations, words, symbols that may or may not represent a reality, signs that may or may not mean something, is never to have learned the *limitations* of the systems of abstractions whose interaction and interplay constitute our 'mental life.'

What we mean by semantic wisdom, then, is what Alfred Korzybski calls 'consciousness of abstracting,' in other words knowing, not by rote, but in one's day-to-day and moment-to-moment responses, that words are not things, that what can be said is not necessarily what can be done, that symbols are not the things symbolized, that the roar of the MGM lion is not a reason for diving under the seat, that verbal associations and affective responses inside one's own nervous system are not to be projected on to the world outside (as when, in cases of paranoia, you believe, on the basis of disordered associations inside your head, that 'someone is trying to poison your food'). Semantic wisdom is, then, a body of negative wisdom training us to know the *limitations of our abstractions*. How we communicate this semantic wisdom is another story, to be left for later discussion. But whether in the classroom, or in the consulting room, or in the army camp, or in industry, all good training includes, whether under the name of semantics or not, the elimination of improper responses to signs, symbols, and sign-situations as well as the inculcation of better responses.

To get to the subject of fear, which is the central matter of our discussion tonight, I think it can be clearly seen now that, whatever real basis given fears may have, semantic malfunctioning multiplies those fears. It may be legitimate to fear Joe Smith, the Negro bandit. But that does not make it legitimate to fear John Howard, the Negro sociologist, or Peter Johnson, the Negro janitor, or Arthur Sims, the Negro musician. It may be legitimate to make an inference on a basis of a collection of random facts that

there *may* be an international Jewish plot to enslave the world. But that does not make it legitimate to treat that inference as a proved fact, and then to live in fear of that plot. It may be legitimate to fear failure in the attainment of a given goal, such as buying a home or carrying out a bomber mission. But, as Professor Wendell Johnson pointed out in 'People in Quandaries' (*ETC.*, I, 69-79), there are many who seek 'success'—never achieve it—and are therefore constantly haunted by fears of failure. In these cases, as Johnson says, since there is no such thing as success-in-the-abstract, since there are only successes in relation to specific goals, it is inevitable that fear of 'failure' should haunt them.

It is not the intention of general semanticists to compete with psychologists and psychiatrists, but to co-operate with them. About therapeutics we have little to say, except to suggest that our descriptions of human malfunctioning in terms of the ways in which people use and abuse symbols, and the ways in which they tangle themselves up in abstractional systems of their own making, must necessarily suggest to psychologists and psychiatrists ways in which they might restate their problems. And, as you know, when problems are restated, new techniques and methods that may be an improvement over present ones may suggest themselves.

I believe we are all pretty much concerned with the same basic problem. In our complex civilization, filled to an unprecedented extent with semantic influences, radio, newspapers, propaganda, preaching, magazines, etc., *people inevitably tend to make their adjustments to descriptions of the world rather than to the world itself.* As Trigant Burrow has eloquently, if somewhat obscurely, pointed out in his *Biology of Human Conflict*, practically everything significant that happens to us, love, hate, hunger, friendship, kindness, etc., are events at the subverbal, organismal level. What is actually going on is all too often obscured, indeed completely hidden from us, by the verbal formulas, the publicly acceptable statements, in terms of which we dramatize ourselves.

Much of verbalistic education is like tampering with the needle of your ammeter when it isn't showing the correct charge instead of getting out and having the battery fixed. Psychotherapists of all reputable schools, it appears to me, have a goal in common with the general semanticists. They are trying to get under the external layer of our verbal formulas and rationalizations, to the subverbal levels of dynamic motivations where true health or illness lies. The semantic discipline insists that when utterances are claimed to have meaning they must have substantial, subverbal content. It insists that when we manipulate symbols without content, as in pure mathematics, we remain aware of what we are doing, and not project an imagined content into our symbols. It insists upon 'map-territory correspondence,' namely, statements that are capable of verification and upon which predictions can be made. It also is in open conflict with most standard academic practices in that it insists that the significant things in life are not words, but the events the words stand for, and also the events that never are verbalized.

The general semanticist can, I suppose, ultimately be driven nuts like anyone else. But there is one respect, I believe, in which he is better off than many others: He will at least not go nuts from talking himself into a corner from which there is no escape. He cannot to that degree believe what he says to himself. He is conscious of abstracting.

✯ EDITORIALS ✯

The Society for General Semantics

The membership of the Society has more than tripled during the past six months. It is still a fraction of what it promises to become. The mathematician Thompson immortalized himself by once remarking, as a gesture of encouragement to his students, that what one fool can do another can. It is to be said likewise that what some physicians, lawyers, business executives, teachers, artists, personnel managers, editors, etc. have been able to do in applying general semantics to advantage in their respective fields, others can do as well. And, by virtue of the better mouse trap principle, they doubtless will. That is why the Society for General Semantics can be expected to undergo a steady and long-continuing growth. And that is why it is in order at this time to take stock with respect to questions of policy.

An examination of the Society's membership reveals one dominating fact: *diversity*. This suggests plainly that it is a basic function of the Society to assist in the *adaptation* of general semantics to the varied fields of work and areas of interest represented by its membership. The Society serves its purpose most effectively, not in trying primarily to make professional general semanticists of its members, but in helping each of them to do his own job better and to live his own life more adequately, by clarifying the uses to which he can put general semantics in his own particular situation. The motto is not: 'Stop what you are doing and become a general semanticist. Be like us.' Rather, it is: 'Apply general semantics in your own way to your own situation. Be yourself more fully.'

In order to make such a policy come to life, it is essential that the Society carry out certain activities. First of all, it must provide for the study of general semantics, and for its continuous development and refinement through scholarship and research. A knowledge of general semantics is, of course, essential to its effective application. Moreover, the remarkable diversity of the Society's membership is understandable only with reference to a common interest in general semantics itself. It is this which makes for unity of diversity.

Important as this is, however, it is not to be missed that danger lies in overstraining for unity so single-mindedly as to overlook the sources of vitality and the possibilities of development inherent in diversity. Someone once said that the trouble with Sunday school is that you can't go on forever talking about being good—which suggests that a group of individuals will soon exhaust the advantages of keeping company if they do nothing but talk about general semantics. Sooner or later they must begin to *use* general semantics, and when they do they will be very likely to discover that the individual differences among them will be fully as important in their continued unity as the common interest that drew them together in the first place.

This is so because variety of application makes for an expanding knowledge and understanding of that which is being applied. If all users of general semantics were teachers of English, for example, they would develop relatively few of its practical implications, and they would illuminate but dimly its theoretical structure. It is precisely because the users of general semantics include lawyers, architects, psychiatrists, remedial reading specialists, speech correctionists, investment brokers, doctors, governmental officials, teachers of practically everything from art to zoology, and so on through an ever-lengthening list—it is because of this that the uses made of general semantics bring out its varied implications in ever richer detail and clarify increasingly its theoretical framework. So it is that even in the exercise of their common interest, through the study of general semantics, the members of the Society discover that in large measure the advantage of their association together springs from their diversity of purposes, problems, vocations and circumstances.

With an appreciation of all this, the study of general semantics is to be encouraged. There are several ways in which the Society can encourage it. It can:

1. Stimulate the teaching of general semantics in schools and colleges, either in courses called General Semantics or in established courses in whatever field taught more or less from a semantic point of view. General semantics, as such, is now taught in a number of colleges and universities, and probably in the majority of institutions of higher education—and in some elementary and high schools—it is taught incidentally or indirectly to some degree in established courses in English, speech, psychology, education, art, physics, social science, mathematics, etc. The Society can serve as a sort of clearing house, and as a source of teaching materials, for teachers at all levels.

2. Assist in the organization of local chapters of the Society, of which several have already been established, in which study programs, lecture series and special projects can be carried on. Service to such chapters can include lists of lecturers available in particular localities, information concerning study materials, methods of conducting study groups, and the like.

3. Publish *Etc.: A Review of General Semantics* and *Quote*„ and other materials which may appear to be suitable for publication by the Society. Reprints of some of the articles published in *Etc.* are at present, of course, made available by separate order.

4. Reading of special interest and value from the point of view of general semantics can be brought to the attention of members of the Society, and, moreover, they can be made available. Positive steps have been taken by the Board of Directors, with a view toward developing a service to be known as the Semantic Book Club. All Society members are being informed of these developments. It need only be said here that it is the present plan to conduct the Semantic Book Club according to well established book club methods, with sound business procedures, but with the emphasis on service to members that is possible for a non-profit organization. Acceptable books dealing with general semantics will more or less automatically become Semantic Book Club selections, of course, but a wide variety of books, both as to subject matter and type (novel, biography, semi-technical scientific exposition, etc.), will be selected. Current selections will be new books; premiums, or so-called book dividends, will be chosen from those previously published.

The value of this service to individual members is obvious. It will also be of significant value in providing reading material for local chapters of the Society, for classes in general semantics, and for study groups, forums, etc.

5. Provide financial support for scientific research dealing with semantic problems, as proposed and conducted by qualified investigators in universities, clinics, hospitals, industrial laboratories, or wherever adequate facilities exist. The extent of such support must depend, of course, on the financial resources of the Society.

6. Conduct lecture series, such as the 1944-45 and 1945-46 series in Chicago, and hold, whenever it appears to be feasible, national conventions open to all members of the Society.

Doubtless further possibilities will suggest themselves in consequence of the activities of the Society and its members.

In providing for the study and continuous development of general semantics, the Society inevitably encourages ever more varied and effective applications; yet, in additional ways it can further application directly. For example, the Society can:

1. Bring pointedly to the attention of its members—through *Etc.*, *Quote*$_n$ and other publications, lecture series and recommended readings—reports of specific applications of general semantics to particular problems and situations. Such reports are invaluable in suggesting further applications to still other problems and situations. While activities of this kind are not to be artificially drummed up or forced, they can be greatly stimulated by the pooling of experience through publication and open discussion. The organization of local chapters and the development of courses and study groups are to be encouraged for this reason.

2. Encourage members, in this connection, to write up their experiences in the use of general semantics, describing specific course assignments or exercises, demonstration methods and materials, research projects, training procedures in particular fields, special readings, difficulties and problems encountered, effective ways of presenting certain points, group study methods, specific applications in everyday life, approaches to personal and social problems suggested by the study of general semantics, etc. Both comprehensive and brief reports of this kind can be published in *Etc.* and *Quote*$_n$, and, when warranted, doubtless additional publication outlets can be provided. Reprints can be made available, of course, of articles appearing in *Etc.*, and where such articles deal with approaches and procedures that can be widely employed, the reprints can be put to use extensively.

In these and other ways the diversity of the Society's membership can be made to yield the great potential value that it has for each individual member. This holds not only for those individual benefits that are personal in a strict sense, but also for the advantages which lie in effective individual and group efforts in relation to social problems whether on a local, national, or world scale. The point of having a Society at all lies in the fact that through such activities as those indicated, it provides the machinery whereby experiences can be pooled and made effective with reference both to individual initiative and collective action.

General semantics is concerned with the study and *application* of basic principles of evaluation, and since methods of evaluation present a fundamental problem in any field of human endeavor and in practically every aspect of daily life, general semantics belongs exclusively to no

one special group, but is of essentially universal interest. The Society, therefore, has no private axes to grind, no vested interests to defend, no simple-minded panaceas to plead. Its scope is determined by the diversity of its members' needs and purposes, and its program necessarily grows out of its members' activities as students and users of general semantics. Its purpose is to stimulate such activities and so far as possible to integrate them. Its value can only be gauged in terms of the experience of its members, and in these terms its value has so far been sufficient to make for steady and considerable growth. This growth is continuing.

WENDELL JOHNSON

Release of Atomic Energy[1]

FOR MANY years scientists suspected the enormous energies inside of the atom. They also suspected that if those energies were released they might have tremendous destructive power, which lately has been proved empirically. They also suspected that if what they already knew was correct, those eventually destructive energies could be harnessed into constructive channels—but this is a problem of the future. That knowledge was due to the uniquely human capacities of transmitting 'knowledge' from generation to generation, not present in any other form of life. I called that human capacity *Time-Binding,* in my *Manhood of Humanity* (1921).[2] All science goes that way, and empirical results speak for themselves, destructively or constructively. The tremendous achievements of science which progress in an accelerating geometrical ratio are due to physico-mathematical ways of 'thinking,' which involve definite common sense methods.

The study of the most important mysteries of atomic energy depended on empirical data from physics, mathematical physics, astronomy, celestial mechanics, etc., but also on investigations in biology, neurology, medicine, psychiatry, etc. All those specialists depend nowadays on each other's investigations.

The releasing of atomic energy is the attempt to solve one of the greatest mysteries of the universe. It took endless patient research work, but what guided the research workers? It was the physico-mathematical method, common to them. Dealing with human beings, who are also mysterious and confusing, it is found in general semantics that the physico-mathematical method can also be applied in solving the complex individual and group human evaluations. Our experience shows that the application of physico-mathematical methods to life orientation helps people, and can be taught even in elementary schools, which involves a revision of our educational methods. The 'great books' of the thomists, Mortimer Adler, etc., have to be supplemented and to a large degree supplanted by *atomist* studies.

One of the consequences of the latest discoveries is that the old methods of warfare become obsolete. In the future a few aeroplanes and a few hundreds of atomic bombs would eliminate a New York, a Chicago, a Paris or London, or a new Berlin and a new Tokyo. Scientific discoveries do not remain secrets. It means that any aggressor at a very cheap

[1] Written August, 1945.

[2] Enlarged new edition in preparation.

price will be able to conquer continents, and be annihilated himself.

This fact alone requires new kinds of social and government control. One of the human consequences may be that devastating wars will cease to happen, as no nation wants to deliberately suicide. This would eventually lead to better scientifically trained governments who really understand what is going on. With better governments, with simplified tasks, the people will be happier and more prosperous, as endless governmental expenses and so taxes will be decreased. The atomic bomb, one of the most world-shaking discoveries ever made, is due to the application of physico-mathematical methods. The utilization of atomic energy in a constructive way will benefit you and me. This discovery as connected with education affects our human adjustment to a universe now better understood. But it will not be a simple task to make the necessary revisions of existing economic, political, sociological, educational, etc., theories. The obstacles are serious, and it will require concerted and strenuous efforts to change the dogmas canalized in our nervous systems for hundreds or thousands of years.

When writing this I was shocked to hear that the State Department decided to accept the Japanese condition of surrender, and agreed to keep Hirohito as emperor. That decision may be fatal for the victors. Hirohito as we know him may be a nice little collegian personally. However, keeping him as the head of the Japanese government reinforces or perpetuates the Japanese general orientation of Shinto, summarized by Inazo Nitobe, for many years a Japanese representative on the League of Nations secretariat at Geneva, in his volume on Japan written in 1931: 'Shinto is a sentiment without philosophy or theology. Its literature, consisting of a few liturgies, is devoid of deep thought or lofty imagination.' It may turn out that we won the war with Japan and perhaps lost the peace. With Hirohito, Shinto will remain, and to educate the Japanese masses to democracy will be impossible. This appears due to the blunders of our allied governments, who simply do not understand what is going on. In general semantics we trace and study the premises from which consequences follow, and so achieve some predictability, as we have in science. If Allied leaders had sufficiently studied Shinto premises, I do not see how they could have made so dangerous a decision as to accept the continuation of the emperor tradition. Let us hope that our generals and President Truman will consider this only as a necessary transitional measure, to be altered later. I may add that we might look at our own cultural inheritance, where some primitive Shinto-ritualism still remains.

Another irony of fate, emphasized even in newspapers, is that some dictators helped our victory through their racial, religious, and political persecutions. The atomic energy release has been accomplished by mathematical physicists of many nations, many of whom are refugees from Nazi and Fascist intolerance, and continued their work in free countries. It is good to be free, but our freedom depends on infinite-valued flexibility, essential to science, and away from Nazi and Shinto ritualism. Scientific method is the only solution for a new system of education. The main lesson we should learn from the latest scientific discoveries is that we are entering a new world, and to comprehend it and adjust ourselves to it requires those infinite-valued orientations which are at the foundation of the brilliant achievements in the exact sciences.

ALFRED KORZYBSKI

✯ BOOK REVIEWS ✯

Fables for Our Time

THE EINSTEIN THEORY OF RELATIVITY, by H. G. and L. R. Lieber. New York: Farrar and Rinehart, 1945. 324 pp., $3.

The comparison may sound far-fetched, but many people reading the books of the Lieber couple may think of Aesop. The wisdom of a culture often finds its outlets not only in the solemn pronouncements of its sages, but also in the homely anecdotes of the masses. So it was in Greece, when the observations on human nature, ethics, and politics were to be found not only in the tragedies of Sophocles, in the dialogues of Plato, in the tracts of Aristotle, but also in the comic-strip characters of Aesop. So it was in the rugged beginnings of our industrial era, when the feudal system was being demolished not only by the intellectual artillery of Rousseau, Tom Paine and Adam Smith, but also by the peashooter of Franklin's Poor Richard.

The Aesops throughout history have mirrored existing ideologies. They were at times sharply critical of the political structure, as in the original quips of Mother Goose, at other times eulogistic of the new era, as in Franklin's *Poor Richard's Almanac*. I cannot think of a time in the past when they were reactionary. Only the present ruling class has succeeded in actually *buying* popular imagination and making it serve its ends. Our own Aesops, that is, most of our cartoonists, comic strip artists, etc., portray a *reactionary* ideology. Even where the political implications are not as obvious as in *Little Orphan Annie*, yet the very subject matter and characterizations are such that only the suburbanite view of the world is allowed to prevail, together with the standardized views of 'human nature,' standardized aspirations (as pictured in adventure strips and in characterizations of 'successful' people), standardized anthropomorphic orientations toward the physical world, standardized respect for science as a gadget-producing magic, the Will Hays code of morals, and finally, provincial contempt for abstract and bold scientific ideas, together with the juxtaposition to them of a glorified 'common sense.'

Such is the state of mentality that the venal popular arts of our age are determined to preserve. The Liebers are equally determined to smash it. Their style, which has by now probably become familiar to many thousands, is in the best Aesop tradition—that is, in the fable-comic-strip tradition of personification, and thus a most effective antidote to our reactionary folklore. Their treatment of the theory of relativity has both the characteristics of a good comic strip and a good fable—humor and suspense at the right moments to put the 'point' across.

The exposition of the Special Theory starts as usual with the Michelson-Morley experiment. But the misgivings of the lay reader, confronted with the Lorentz transformation, are dealt with more effectively than in most popularizations. The technique of general semantics, that

is, of mercilessly dissecting the 'self-evident' truths marked by tacit assumptions, finds its richest reward precisely in the treatment of the relativity theory, which itself was inspired by a re-examination of tacit assumptions.

The style of the Liebers' book contributes not a little to the ease with which the 'morals' of the fables are put across. The authors are no more shy of capital letters in their text than advertisers are in theirs. If capitals in the latter are effective in brow-beating prospective victims, in the former they are effective in demolishing prejudice. Anyone sympathetic to the aims of the authors certainly wants to shout the capitalized words in 'LENGTH is NOT a FACT about an OBJECT but rather a RELATIONSHIP between the OBJECT and the OBSERVER.' It is gratifying to see that the authors do shout them.

The first part of the book, dealing with the special theory, can be understood by anyone with a knowledge of high school algebra who *wants* to understand it. To the credit of the authors, it must be said that they do everything possible to create this desire.

To follow the second part of the book completely, it seems that familiarity with at least the fundamental ideas of the calculus and of differential geometry is necessary. The tensor is not a simple idea to grasp, even though operating with tensors is a simple process. However, even if the mathematically untrained person cannot follow the mathematical reasoning, the fundamental ideas of the equivalence principle are open to all, and anyone can find the answers to the perplexing questions about what the Einstein theory has to do with the bending of light rays, with the precession of Mercury's orbit, with the Fraunhofer lines, with the release of atomic energy—all seemingly disconnected phenomena.

But most significantly, the reader is shown what the theory of relativity has to do with enlightenment and democracy. This aspect of the scientific method is not at all far-fetched. We now know what blows were dealt to the entrenched medieval ideology by the Copernican theory and to its remnants by the Darwin theory. And in the light of historical perspective we see that the struggles of ideologies are not at all confined to 'tis-'taint arguments about the earth's position in the solar system or man's position in the biological universe. Cosmologies and biological theories are mere *manifestations* of ideologies which go much deeper.

It is probably with this view that Lillian Lieber has Mr. K refer to Mr. K' (whose coödinate system is accelerated with respect to K) as 'my good neighbor,' not 'that deluded fool.'

The Theory of Relativity is important not so much for itself as for the fact that it is a manifestation of a new, freer outlook, of which the ideas of a coöperative society and mutual tolerance are other manifestations. Its great moral is embodied in its commandment to physicists: 'If you would seek physical laws, seek quantities invariant for as many observers as possible.' What more valuable admonition can be made to our philosophers who unconsciously derive their systems of ethics, esthetics, politics, from the limited point of view of a very particular set of tacit assumptions (coördinate axes), and believe the conclusions of these systems to be universal (invariant)?

The drawings of Hugh Lieber are a large part of the Aesopian flavor of this book. They are a challenge. The rewards to the attentive reader are delicious. He will chuckle over the happy Vector couple and their offspring Tensor, over the Pudding being served to scientists in the form

of the 'proof' of the theory—bending of light rays, precession of Mercury's orbit, displacement of Fraunhofer lines. He will see God in his heaven with the fundamental dimensions of Newtonian Physics in his beard. He will see ailing Physics examined by a Scientist whose mind is caught in a cobweb; the Transformation of Coördinates where the L, M, T pass over the bridge made of the equations of Lorentz from K to K'; Non-Euclidean Geometry with a feather in his cap; a Physicist fishing for Invariants, and many other delightful tongue-in-the-cheek surprises. We look forward to the day when primers will tell children the facts of life in fables that reflect *our* reality.

ANATOL RAPOPORT
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Heuristic

HOW TO SOLVE IT: A NEW ASPECT OF MATHEMATICAL METHOD, by G. Polya. Princeton: Princeton University Press, 1945. $1.75.

Heuristic represents the study of methods of problem-solving, and is usually considered under mathematics, although the methods studied are general methods. It is an ancient discipline which Professor Polya of Stanford University has now revived, revised, and brought up to date.

This short volume is addressed chiefly to teachers and students of mathematics, attempting to vitalize the customary study of mathematics by orienting it toward an undoubtedly common activity, problem-solving. But it may interest anyone concerned with method, or with ways and means of discovery and invention.

A 'short dictionary of heuristic' occupies five-sixths of the book and elucidates the general terms of the answer to 'how to solve it.' This answer is considered under four heads: understanding the problem, devising a plan, carrying out the plan, and looking back. There are frequent examples, mostly drawn from elementary mathematics.

The book, forerunner of a more extensive work, is written simply and straightforwardly, but this reviewer at least was somewhat disappointed in that he had anticipated that a book with the present title would be more exciting.

Teachers of mathematics will find it extremely useful, and probably most of them should peruse it.

LOUIS PAUL, M.D.

Pioneer Curriculum

TEACHING ENGLISH AS A COMMUNICATION ART. Curriculum Bulletin 415, Orange Public Schools, Orange, Texas, 1945.

With the publication of this bulletin, general semantics enters upon a new and highly promising stage of development. Its educational uses and applications are no longer to be viewed as far-distant and abstract potentialities; in this English course of study they are put actively to work and their validity and value can easily be tested on the pedagogic firing line.

The encouraging feature of this bulletin is that it is the fruit of teacher collaboration in a summer workshop. A number of teachers set out to develop methods of instruction in English which would embody the directly usable practices of orthology and general semantics. Particularly noteworthy is the degree of success achieved in translating the principles of general semantics into pedagogic practice. General semantics ceases to be a stunt, an educational fad, a daring but

utterly impractical heresy, a scientific utopia added to the already overcrowded English course of study. It permeates and supplies methods for every area of English instruction: reading, speaking, writing, and listening. In fact, the most novel and most fruitful sections in this publication are those that demonstrate how general semantics can be constructively applied to such problems as remedial reading, creative writing, intelligent listening, and effective speaking. Unlike the traditional course of study in English, this is not a thing of shreds and patches. It achieves a surprising unity of content and method. Properly to be understood and evaluated, it must be read in its entirety in the light of its central purpose and its dominating aim. Those English teachers who despaired because they were tied down to a formalistic, iron-clad, and largely ineffectual curricular routine, can now take heart.

Up until the present, the stereotyped objection to general semantics has been that 'it cannot be taught,' presumably on the ground that it is 'too specialized a subject,' beyond the scope of understanding of the adolescent. *Teaching English as a Communication Art* puts an end to such objections. Better adapted to teaching purposes than the recent monograph by Robert H. Moore, *General Semantics in the High-School English Program,* the bulletin issued by the Orange Public Schools offers proof positive that general semantics can supply the basic methodology for the English course of study. It is a rash prophecy to make, but it may well be that the Orange Public Schools and their enterprising administrative and teaching staff will go down in educational history as the first to incorporate completely in their course of study the methodology of semantics and general semantics.

This bulletin was prepared by the Language Arts Committee of the Orange faculty in the Summer Workshop in Basic Communication Skills at the University of Denver under the direction of Dr. Elwood Murray and in cooperation with special consultants like Dr. Wendell Johnson, Dr. Francis P. Chisholm, and Major Charles T. Estes. It contains nothing that is 'revolutionary' in the methods proposed or the contents outlined. What is 'new' is the frame of reference within which these methods and contents are included, the educational philosophy which animated the authors. In contrast to the established tradition which tends to conceive of English as a purely descriptive study of linguistics, this bulletin incorporates the most valuable practices of the disciplines founded by Alfred Korzybski and I. A. Richards. Though pointing out that general semantics is not to be confused with the science of language as developed by Ogden and Richards, since each has its special terminology, its body of premises, and techniques, the committee responsible for shaping this bulletin has drawn freely but wisely upon both disciplines.

Teaching English as a Communication Art presents a number of stimulating teaching projects, the integrated units providing a continuous program for the improvement of the pupil's total personality. The importance of context is stressed consistently throughout and the danger of verbalism—the study of words in isolation and for their own sake—is thus overcome. Knowledge and skill, theory and practice, form and function are effectively fused. The young are taught to differentiate between verifiable statements and statements of judgment, between description and inference. The exercises help them gradually to bring the howling chaos of abstractions under

control. The section devoted to 'report writing' deserves careful study, for it offers a pragmatically sound approach to the difficult art of teaching composition. Once English teaching is conducted in terms of communication, the study of grammar as a formal discipline falls into its proper place. The aim of writing or speaking is 'communication,' and the analysis and memorization of abstract grammatical categories add little or nothing to the facilitation of this process. Only those obstacles that stand in the way of communication must be removed. Writing, for example, is done for a particular audience and motivated by a genuine communicative purpose. Equally promising is the suggested use of verbal discrimination tests based on contextual clues rather than on the recognition of words which are synonyms.

It is the overall picture of general semantics in action that is so heartening a feature of *Teaching English as a Communication Art*. It points out how language may be misused because of the primitive tendency on the part of young and old to speak and write as if symbols have a direct powerful influence on reality, as if symbols *are* reality. To counteract this tendency there are exercises on the scientific use of language so that pupils may gradually come to the understanding that symbols, as in algebra, are but a way of formulating reality. Pupils thus arrive at the realization that language is like a map; it represents a tract of territory, but the map is never to be mistaken for the territory. Moreover, the same fact-territory may be represented by different kinds of maps. There is no reason under the sun why pupils cannot be taught to develop this sense of linguistic discrimination.

Definite techniques are described for directing learning in the language arts. Since every pupil has interests of some kind, the schools should endeavor to provide him with reading material that is suited to his needs and yet well within his range of comprehension. In this way the individual differences of the young are recognized and respected. All this is fully in keeping with the educational implications of general semantics, which stress differences as well as likenesses. The pupil who is 'different' is no longer ridiculed and stigmatized. Each individual is unique. Not only that but he has his own way of observing nature, people, objects, colors, etc. No two people react in the same way to any situation. Reading, for example, is essentially a creative act. The young are encouraged to read 'between the lines,' to relate what they read to their own experience, to derive the meaning of words from the context. The effort on the part of the reader to put himself in the author's place helps him to concentrate attention on the fact-territory rather than on his own agreement or disagreement. General semantics applied to the art of reading induces neurological delay; the reader must first map out the territory as described by the author. The emphasis is placed on what the author said and not on whether pupils like and approve of what they think he said. First comes understanding, then critical judgment. The cultivation of attitudes is an important part of the study of literature, but these attitudes should be reactions to the territory represented by the material read, and not result in a capricious and often irresponsible airing of opinions. The reader constantly compares his pattern of experience with the one that emerges from the text. In time he begins to see that what he or any one else says about anything may be true; but it is never the whole truth, nor is it always true.

This is by no means to be taken as the last word in curriculum building. It is not

intended as such. A prolegomena to the study of semantics and general semantics as applied to English, it opens up new vistas for both teachers and pupils as they engage in the joint enterprise of mastering English as a communication art.

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Power for the People

TVA: DEMOCRACY ON THE MARCH, by David Lilienthal. Harper, 1944; Pocket Books, 1945.

This book is a record of a great achievement: the physical transformation of the Tennessee Valley and its great river, and the regional development accomplished by the TVA and the valley citizens during the first ten years of the project. In this 'report to the stockholders,' that is, to you and me as citizen-owners of TVA, the chairman of the great project has told clearly and simply an exciting story of the transformation of a region. In the TVA experiment, generations-old problems—waste of resources, flood control, navigation, erosion, exploitation of hydroelectric power, etc.—were attacked from new scientific premises with new methods. There were physical gains, such as power, phosphates, land restoration, and recreation sites, and marked gains in regional prosperity. But more important and fundamental, the author makes us feel, were the imponderables: the increased sense of accomplishment, of community endeavor and responsibility, of 'democracy on the march' toward self-determined community goals, which he detects as revitalizing the life of the region: 'We can write of great dams. . . . Yet the significant advance has been made in the thinking of the people. . . . They have caught the vision of their own powers.'

But the book is more than a concise and modest recital of achievement. Students of general semantics will see in it a textbook of extensional method applied to large-scale problems. Lilienthal himself calls it a 'statement of faith' in technology and democracy. We are all indebted to him for his brilliant demonstration of the thesis which sums up the social necessity for teaching general semantics: the thesis that the extensional scientific method is the method of democracy in action.

Lilienthal's methodological discussions are a kind of short text in applied general semantics. (One great importance of the book is the fullness and frequency of the discussions of *method:* nowhere have I seen it more clearly pointed out that the results we get depend upon *how* we attack our problems.) The treatment of the very real problems faced was extensional, non-elementalistic. 'TVA's purpose was not the making of plans, but that a valley be developed.' 'To the farmer on his land, the problems do not fit into neat cubicles labeled "forestry" or "soil chemistry" . . . soil erosion is not separate from the whole business of making a living on the land.' And the author warns us and shows us the social dangers of intension, of elementalism, of merely traditional methods. When the problems were approached from openly-defined and accepted premises, it turned out that people acted as citizens and not as 'business men' or 'backwoods farmers.' 'My purpose in writing is to try to cut through the fog of uncertainty and confusion about tomorrow [which is] caused largely by words. We must see the reality behind the words. . . . My purpose is to show, by authentic experience in one American region, that our choice need not be between extremes of "right" and "left" . . .'

Among many discussions which I would like to cite, I single out the chapters on 'Experts and the People' and on 'Decentralization' as bearing upon important post-war problems. More and more, says Lilienthal, we need to depend upon the specialist, whose training, nevertheless, leads him to see *all* life in terms of his specialty. 'Technicians will not be so likely to lose themselves in their work, hence will not be most effective, unless they can see their talents as part of a whole task that appeals to them as important'; only by working with laymen on lay problems can the narrow outlook of specialism be overcome. By decentralization, Lilienthal means responsibility and authority by field executives to carry out central policies with the people: not 'giving up' by the national government of its extensive powers, but a return to the people *in action* of the powers originally granted.

We have heard so much of the 'dangers' of 'planning' and of 'science' to democratic values that it is good to read this common-sense exposition of how to put scientific knowledge to work for the people. Another value is the setting forth of a managerial theory based not on managing people, but on managing *with* people. As is apparent, I am enthusiastic about this book. And I am especially happy to see it in the Pocket Books edition, right out there on the drug-store and railroad canteen stands, offering its own special kind of excitement in competition with *Purple Death* and *Murder in the Stratosphere*. Serious students of community problems will however probably want the Harpers edition, because of its legal and technical bibliographies.

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The Attitude of 'As If'

INTRODUCTORY LECTURES ON GENERAL SEMANTICS, by Francis P. Chisholm. Chicago: Institute of General Semantics, 1944. 139 pp. (mimeo). $2.50.

Francis P. Chisholm's *Introductory Lectures on General Semantics* I find to be a most clear and persuasive account of why one must develop a constant awareness of the process of abstracting. This series of six lectures delivered in Chicago at the Institute of General Semantics in August, 1944, begins with the pivotal problem of identification, resulting from lack of awareness of the role of individual perception in human knowledge. How we know what we know is the central theme of the book.

Two old semantic systems which have helped to mold our language have given people a false confidence in the efficacy of words. One is primitive magic, which leads people to feel that language can control reality. The other is the Aristotelian logical frame, which leads people to feel that language mirrors reality. Both these systems lead men to false faith that they can arrive at 'eternal truth' through proper manipulation of words.

Chisholm explains carefully and clearly why, in the light of modern scientific evidence, one cannot have such an attitude toward knowledge. To avoid identification one must be continually aware of the part which his own nervous system plays in perceiving three types of structure. The first is the submicroscopic electrical structure of the universe, which we arrive at by inference from scientific evidence. The second is the structure which our senses contribute to 'things.' We see what we see because of the manner in which our individual sense mechanisms operate. The third is the structure of lan-

guage, which unfortunately for sane modern living and 'thinking' is based upon naive sense perception rather than upon scientific evidence. Since we contribute all three of these types of structure to the universe, either through perception or inference, we cannot afford to be too dogmatic about what is 'true.' 'The system of my knowledge is closed,' says Chisholm. 'It is all inside me.'

We can only attempt to rid ourselves of what seem to be false-to-fact structural assumptions by becoming conscious of these assumptions, and then adopt the attitude of AS IF toward our knowledge. 'Whereas in the metaphysical tradition you end up with eternal truths, which people have perished to defend or deny, in the scientific tradition you end up with hypotheses.'

After having thus carefully developed the fundamental formulation of general semantics—consciousness of abstracting—Chisholm devotes the remainder of the book to an application of this attitude toward human knowledge to our problems of living and 'thinking.' Two of his most interesting sections are on the 'Aristotelian Laws of Thought,' and on 'Paradoxes.' He gives an extended analysis of the so-called 'laws of thought.' Paradoxes, he explains, arise not from contradiction in the facts, but from the way in which the problem is verbally formulated.

To the careful student of general semantics there is nothing particularly new in Chisholm's *Introductory Lectures,* other than certain excellent examples chosen from his own experience in the fields of both science and literature. Since these lectures were delivered at the Institute in Chicago, the attempt was made to follow Korzybski as closely as possible. The reader will get more of the spirit, methodology, and actual example of Korzybski's seminar out of Chisholm than out of either Lee or Hayakawa. The book does not have the brilliant style of *Language in Action,* but it is a more detailed explanation of semantic formulations than other explanations of Korzybski. Chisholm's book is not so valuable for new applications of semantics as it is for a thorough exposition of the methodology in not-too-complicated language.

Lecture 4, Part 1, on 'Language-fact Relationships,' analyzes the implications of Aristotelian logic in life situations. Such logic encourages the notion that class names and concepts have 'real' existence *out there* in 'nature.' It leads people to assume that judgments and qualities are in the 'object.' It fosters the tendency to feel that the individual is identical with the verbal definition. Chisholm's examples of false-to-fact implications arising from the subject-predicate structure of the English language are excellent. Consider these ludicrous splittings of a process into actor and action: 'Volcanoes build mountains,' and 'Jones has done this deed.'

Chisholm's *Introductory Lectures* can best be used in discussion clubs and in college teaching. It is not elementary enough for high school. It is not advanced enough to challenge the specialist, although it may help to clarify certain matters. The book is what it purports to be, 'introductory' lectures, and it is for adults who wish to learn more about semantics. It will be especially valuable for educators and teachers of literature. Some of its comments would go a long way toward helping certain people appreciate modern art.

A possible defect in the book arises from its being a series of transcribed lectures. That fact leads to discursiveness and some lack of direction. I feel that general semantics can now be reduced to a little more order and system. It is an

empirical method which had to be built inductively. But now that the system has assumed certain proportions, it can be presented deductively. The conversational quality of the lectures does, however, make them more readable for the student.

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Struggle in The Mind

AN AMERICAN DILEMMA: THE NEGRO PROBLEM AND MODERN DEMOCRACY, by Gunnar Myrdal, with the assistance of Richard Sterner and Arnold Rose. New York: Harper, 1944; 2 vols., $7.50.

The fact should be noted for what it is worth, that the Carnegie Corporation of New York selected Gunnar Myrdal, a brilliant Scandinavian sociologist, to undertake this stupendous task of research on the American Negro. The choice proved to be a happy one. Gunnar Myrdal combines scholarly thoroughness and respect for what the facts in all their complex and often contradictory interrelationships disclose, with profound insight, a capacity for unifying his material by organizing it around a core of explicitly stated value-assumptions, and an extensional candor that must be embarrassing, if not galling, to many Southerners. Gunnar Myrdal sees, and frankly says, many things which lie outside the ideological frame of reference within which many native writers on the subject operate. He is not afraid to expose the skeleton in our national closet. He deals not only with the political and economic aspects of the Negro problem, with race ancestry, racial characteristics, racial beliefs, etc., but also indicates how these are related to American ideals of democracy. With keen powers of analysis, he reveals how this problem is a painful source of conflict and guilt, pointing out how it is really a problem in the heart of the white American, where it gives rise to interracial tension. The racial situation leaves its distorting mark upon the Negro personality but it also warps the personality of the white man. The Negro, forced to look upon everything through the perspective of the racial problem, finally becomes obsessed with it.

One of Gunnar Myrdal's important methodological assumptions is that the Negro problem in the United States cannot be satisfactorily discussed in isolation from the numerous other factors which impinge upon it. Social causation is complex and its various elements interdependent. If one factor is changed, the whole problem is shifted into a new focus. There is not one basic cause to be considered.

Throughout the two volumes, Gunnar Myrdal employs methods of analysis and evaluation which are strikingly in keeping with the methods developed by general semantics. There is nothing surprising in this parallelism when one realizes that Myrdal's 'sociologizing' and the system of general semantics are both rooted in and grow out of the scientific method. For example, Myrdal indicates how the race dogma of biological inferiority was trotted out to bolster the caste system and justify the violation of American democracy. Despite the environmental theory of causation to which many scientists subscribe, with its rejection of a fixed 'human nature,' Negroes were assigned to a lower rank in the biological hierarchy and 'facts' were found to substantiate this theory. Of special interest to general semanticists is Myrdal's discussion of the whole 'sphere of valuations' as expressed in thought, speech, and behavior, and its pervasive influence on racial attitudes.

Though Myrdal does not employ the language of general semantics, his work can, with slight modifications, be used as a basic text to develop a semantic approach to the Negro problem. The following passage not only embodies a scientific method of investigating the racial problem; it also illustrates the way a general semanticist, who tries to be scientific, would attempt to tackle the same problem.

> Among the things we want to know are: What do people mean by 'race' in reference to the Negro people? To what extent do they allow for influence of environmental factors? How do they relate those factors to the race and to the individual, respectively? What is their idea about the manner in which education, better housing conditions, better nutrition, and so forth, 'improve' —or 'spoil'—the Negroes? To what extent and how do people allow for individual exceptions from their racial beliefs? Do they believe that all Negroes are worse than all whites, and, if so, in what specific sense? How, more specifically, do they 'think in averages'? and in contrast types? What are people's ideas as to the effect of crossbreeding upon the offspring? What specific beliefs are held concerning diverse bodily, intellectual, and moral Negro traits? How are they coördinated in systems of beliefs? How are they coördinated with people's religious faith and the American Creed? What evidence do people find for their beliefs? How do people feel their own beliefs related to tradition and community consensus? Do people recognize an irrational element in their beliefs, and how do they account for this element? Do people ever sense the opportunistic character of their beliefs? Do people know anything about results of recent scientific research rejecting the racial beliefs or showing that they are without substantiation? What is their reaction to these endeavors of scientific research? What is their reaction to attempts to spread scientific knowledge on racial matters? In all these respects, we want to have the spheres of beliefs recorded for white individuals in different regions of the country, different social and economic classes, on different levels of education, in different age groups, and in the two sexes. (II, 1197-1198)

Negroes emerge in a different light when we look upon them (and upon ourselves) as a cultural product and not as a specimen of biologically destined inferiority. The tradition has grown up that they are invincibly ignorant, yet the Southern whites take good care to keep them so by depriving them of adequate opportunities for education. Though America, the melting pot, has undertaken the enormous task of binding different ethnic groups into cultural unity, the Negroes were not given a chance to assimilate. Despite all these handicaps, they are very much like the whites in their habits and institutional traits. Not only have they lost all traces of their African origin; because of the discrimination they encounter on all sides, they have striven to be ultra-American in almost every respect. Gunnar Myrdal assumes that it is to the advantage of American Negroes to become assimilated into American culture. It is 'good' for the individual and 'good' for the group. Not because American culture is inherently 'superior' to other cultures. All such 'value' judgments are relative. The reason is simply that American culture offers the most practical life-adjustment for Negroes in this environment and at this juncture of time (II, 929). Negroes must thus adjust themselves to a cultural situation which at heart they must

condemn as unjust.

Here is an intolerable social reality that Negroes must somehow both accept and denounce. Though preaching the gospel of democracy, they must butt their collective head daily against an unyielding wall of race hatred and hostility. The fight goes on. To admit racial or biological inferiority is psychologically as impossible for Negroes as to perceive themselves as dead. Then how account for their low status? The answer must be given in sociological and deterministic terms. It is not heredity but lack of opportunity that has brought Negroes to their present low estate. In this manner Negroes gain objective insight into their condition and realistically appraise the possibilities of achievement open to them in a caste-ridden society. There is thus this demoralizing contradiction in their personality: on the one hand, they desire with all their heart to be regarded and to live as American citizens, and yet the caste system compels them to think and live like 'Negroes.'

In the meantime, Negroes adjust themselves under protest. They continue to point out the discrepancy between the promise of the American dream and the drab, shameful reality. General semantics cannot 'solve' their problem but it can offer them a perspective of understanding and evaluation. It helps them to look out for and clarify hidden assumptions. What are white people thinking and why do they think as they do? Such knowledge would enable us to understand why they behave as they do. This is not to ignore the power and impact of economic causation. But changes in one will not take place without concomitant changes in the other. It is not enough to raise the economic status of Negroes by law without at the same time changing people's valuations of Negroes as human beings, as personalities whose dignity must be respected. Myrdal sums it up concisely by saying 'that the Negro problem has its existence in the American mind. There the decisive struggle goes on. It is there that the changes occur' (II, 998).

CHARLES I. GLICKSBERG

Man as Prime-Mover

THE STRENGTH OF NATIONS, by George Soule. New York: Macmillan, 1942. $2.50.

We have been ushered—with a bang—into the atomic age. Someday we will enter the psychosomatic age: the age of better integrated, psychosomatically-healthy individuals. Such individuals are truly 'the strength of nations.'

Surely a psychosomatic age is potentially of greater survival value than an atomic age, for without a thorough re-evaluation in our personal, social, and global orientations, we may not survive an atomic era. And entering the psychosomatic age will be more difficult than anything we have done so far, atom-splitting included, for we shall have to change ourselves.

Soule's book, now three years old, has added significance as we hesitate on the threshold of the atomic era. It deals with the effects of a new dynamic, psychosomatic, non-aristotelian description of 'man' in social science. (It is subtitled 'A study in social theory.') The work is problem-oriented, by which I mean it does not deal abstractly with separate 'fields of knowledge,' but is concretely concerned with how we can approach certain problems of our civilization, *i.e.*, how can we get around to asking 'proper' questions that are in themselves nine-tenths of the solutions.

Soule says we must learn to ask 'proper'

questions in the social sciences. 'If we can put some of these questions, we will have done something more necessary at the present juncture than to try to improvise answers which, so far as anybody definitely knows, may be useless or even harmful.'

When this is done the social sciences will be akin to the physical sciences in methodology; they will be using 'painstaking scientific method.' Although Soule does not state explicitly what this method represents to him, there is frequent implicit recognition that it consists of the constant interaction between stated assumptions and predictions (results), which Korzybski terms physico-mathematical method.

If social scientists are to propose 'proper' questions, they must have a modern, non-aristotelian 'definition' of human beings. Man can no longer be either parvenu ape or fallen angel. On this point, which is discussed at length, Soule could have done better had he *clearly* adopted the description of man as a time-binder. He almost comes to this general semantic formulation of $Smith_1$, $Smith_2$, etc., in his chapter on the life-purposes which men have, but he falls short. His one statement to the effect that man is an animal plus a big cortex does not represent his underlying attitude, but is rather a journalistic formulation easy for a writer to fall into.

In Chapter I the ills of American society are briefly reviewed. Soule says: 'There is no hope of abolishing the power of false doctrines of social salvation merely by convincing people that they will not work. One false doctrine after another may in that event be exposed, but each is sure to have a successor.' This is a good example of equivalent (basic) premises, or what might be called hydra-headed assumptions. In place of merely verbal revision, 'Daring re-examination of first principles . . . new insights and new hypotheses' are required.

Chapter IV includes an excellent and readable account of the development of psychoanalytic theories, the best short, yet reliable statement I've encountered. In the subsequent chapter Pavlov's work and later investigations of experimental animal neuroses are reviewed briefly. The psychosomatic attitude is presented in several pages, which give a first-rate account of Dunbar's work.

'Human nature and economics,' Chapter VI, includes a history of economic theory from the standpoint of hidden assumptions about human beings. After an excursion into 'Why totalitarian revolutions fail,' Soule devotes the remaining chapters to 'Dynamic society and its sciences,' 'The problem of values,' and 'Indications for action.' He significantly says: 'To keep out of our thinking teleological considerations and value judgments is to keep out the only principles by which the materials of social science may be theoretically organized, for it is these very principles which constitute the dynamics of the phenomena observed.'

Soule concludes: 'Equipped with the appropriate intellectual apparatus and techniques, science is as capable of illuminating human society as of analyzing the nature of the physical world. It is also capable of altering human action in social relationships just as it has altered them in the use of mechanical forces . . . man himself has become a prime mover, whether for self-preservation or for self-destruction, and cannot rely on any force not embodied or implied in himself. But, with proper understanding and use of the energy of which he is an organization, he can certainly avoid self-defeat to a greater extent than in the past.'

LOUIS PAUL, M.D.

✯ NEWS AND MISCELLANY ✯

Membership Year

In response to several inquiries, the following explanation is due to new members: The fiscal year of the Society for General Semantics ends on June 30 of each year. It has been found most convenient for bookkeeping purposes, to terminate each individual membership as of that date. Persons joining the Society late in the membership year, however, are entitled to the same privileges as those who may have joined in the first few days of the same year; *i.e.*, to receive a complete volume (four issues) of *ETC.* and all issues of the newsletter published during the membership period. They may renew their membership at any time during the ensuing year.

Members who have joined since June 30, 1945, should have received all issues of $Quote_n$ since $Quote_6$. (Current issue is $Quote_{11}$.) They should also have received Vol. III, No. 1 of *ETC.* Those who have failed to receive any of the publications due to them may receive them by notifying the Society at 3300 Federal St., Chicago 16.

Semantic Book Club

The questionnaire to our membership regarding the advisability of a Book Club service for members has resulted so far in almost 300 replies. All but 7 to 8 per cent of the replies have been favorable; many have been enthusiastic. The Governing Board has therefore decided to start the service, under the name of 'Semantic Book Club.'

Although full details have not yet been determined, the following decisions can now be announced:

Books dealing with general semantics will almost automatically be selected, but a wide range of other books, whether novels, biographies, scientific exposition, or philosophy, are also eligible for selection whenever they present a point of view or a body of information likely to be of value and interest to students of general semantics.

The selection committee will consist of Professors WENDELL JOHNSON, IRVING J. LEE, S. I. HAYAKAWA, and MR. A. C. SPECTORSKY, literary editor of the Chicago *Sun*. MR. HEINZ WERNER, manager of the book department of Mandel's (Chicago department store) and an authority on book clubs, has consented to act as Technical Consultant.

Both members and non-members of the Society for General Semantics may become members of the Semantic Book Club. There will be not fewer than six, not more than twelve selections a year. Book premiums will be offered from time to time to purchasers.

The Society for General Semantics is a not-for-profit organization. Surplus from the book club, if any, will be used to increase services to members (*e.g.*, enlarging *ETC.*, increasing publications), to promote research and inquiry in general semantics by such means as the setting up of fellowships and research grants, and to spread the knowledge of general semantics wherever possible through public channels of communication.

Items

DR. ANATOL RAPOPORT has recently been appointed Instructor in Mathematics at the Illinois Institute of Technology. He also assumes, beginning with this issue, the duties of Assistant Editor of *ETC.*, succeeding DR. F. K. RICHTER. Dr. Richter's other duties, notably with the Literarische Gesellschaft (Chicago), of which he is president, and with the Chicago Chapter of the N.A.A.C.P., of which he is a board member, have compelled him to withdraw from the staff of *ETC.* . . . The new printing of *Science and Sanity,* by Alfred Korzybski, is now available at the Institute of General Semantics, 1234 E. 56th St., Chicago 37 (price, $6). . . . The Institute of General Semantics also plans a reprinting of Korzybski's *Manhood of Humanity,* which has been out of print for some years. . . . On January 25, S. I. HAYAKAWA spoke to a meeting of members and guests of the Semantic Workshop Associates, at the Huntington Chambers, Boston, Massachusetts. Some 300 persons representing the principal institutions of higher learning in the Boston area were present. Dr. Hayakawa was introduced by Professor EDWARD POST, of the Department of English, Boston University. On January 26, Dr. Hayakawa presented before the New York Society for General Semantics the paper, 'Poetry and Advertising,' which is printed in this issue.

Chapter Notes

The first meeting of the new State University of Iowa Chapter of the Society for General Semantics was held early in February, 1946. At present there are 17 members of the chapter. The officers are CHANDLER SCREVEN, *president;* OLIVER BLOODSTEIN, *secretary;* and ELIZABETH ERDICE, *treasurer.*

E. O. HAES is president of the newest and most distant chapter of the Society for General Semantics, namely, the chapter at Sydney, New South Wales. It had twelve members at its inception. For an account of how general semantics was introduced to this group in Australia, see the letter from LAWRENCE O. ANDERSON in *ETC.*, II, 243-245 (Summer 1945).

On the invitation of PROFESSORS THOMAS P. BEYER, BLOYS BARRETT, and MIRON A. MORRILL, of Hamline University, PROFESSOR F. EARL WARD of Macalester College, and JUDGE GUSTAVUS LOEVENGER of the U. S. District Court, a meeting was held at Hamline University on April 8 for the purpose of organizing a chapter of the Society for General Semantics. PROFESSOR FRANCIS P. CHISHOLM, State Teachers College, River Falls, Wisconsin, was the speaker.

Lecture Series in Chicago

Some 300 to 500 persons attended the lectures of the Society for General Semantics series, 'Communication or Chaos,' at Thorne Hall, Northwestern University Downtown Campus. On February 1, MAJOR CHARLES T. ESTES, Liaison Conciliator of the U. S. Department of Labor, spoke on 'Communication in Labor-Management Relations,' and on February 8, DR. C. B. CONGDON, University of Chicago Student Health Service, spoke on 'The Challenge to Psychiatry in the Post-war Era.' MR. CLIFTON UTLEY, NBC Commentator, spoke on March 1 in reply to the question, 'How Can One Be a Radio Commentator and Still Talk Sense?' MR. HORACE R. CAYTON, director of the Parkway Community Center and co-author of *Black Metropolis,* spoke on March 15 on 'The Psychology of Racial Oppression.' The final lecture of the series, on 'The Non-Aristotelian Revision of Morality,' was given on March 29 by S. I. HAYAKAWA.

Annual Bibliography

ALLEN WALKER READ, lexicographer and semanticist, who is still on leave of absence from the Illinois Institute of Technology preparing his forthcoming *Dictionary of Briticisms*, has undertaken to prepare, for publication in *ETC.*, an annual bibliography of semantics and general semantics.

Mr. Read is now completing work on the bibliography for 1945. It will probably be printed in our next (Spring 1946) issue. Readers knowing of any articles on semantics or general semantics that have appeared in specialized journals that are likely to have escaped attention are requested to send such items to Mr. Read as soon as possible. His address is 38 W. 12th St., New York 11, N. Y.

Summer IGS Seminar

The annual three-week summer Seminar and Workshop will be offered at the Institute of General Semantics, 1234 E. 56th St., Chicago 37, from August 12 to August 31, 1946. Seminar lectures will be conducted by ALFRED KORZYBSKI, director; workshop sessions by MISS M. KENDIG, associate director.

PROFESSOR WILBUR E. MOORE, head of the Department of Speech, Central Michigan College of Education, will conduct special lecture-conferences on psychology and general semantics during the workshop period. Other special consultants will also be present.

New Directors

DR. IRVING J. LEE, assistant professor and chairman of the Department of Public Speaking, School of Speech, Northwestern University, and author of *Language Habits in Human Affairs* (Harper, 1941), has been appointed to the Governing Board of the Society to fill the unexpired term of EDWIN S. HEWITT, whose resignation was announced in our last issue. MR. CHARLES L. KLUSS, who is one of the committee that founded the Society, has also withdrawn from the Board because of the pressure of other duties. MR. A. C. SPECTORSKY, literary editor of the Chicago *Sun*, has been appointed to the Board to fill Mr. Kluss's unexpired term.

Senator Byrd on G. S.

The following is quoted from Senate Report No. 551, on 'Establishing A Research Board For National Security,' Senator Harry F. Byrd of Virginia, a member of the Committee on Naval Affairs, reporting: 'It is suggested, however, that before final action is taken on any such plan, the entire field of scientific methodology be surveyed to determine what procedures could be taken to insure that scientific methods be employed in the so-called social sciences as well as in the so-called material sciences. It is suggested, especially, that a thorough study be made of the new non-Aristotelian methodology, before a final decision is made with respect to formulating a national policy for scientific research and education and committing the Federal Government to the financing of research in universities and private nonprofit institutions, and providing scholarships for a large number of students. It is understood that the new non-Aristotelian methodology is especially applicable to the scientific study of the so-called social sciences.'

"It faut être absolument moderne."—Rimbaud. ☆ ☆ ☆

☆☆☆☆ View

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In response to the demand for more extensive training and drill in General Semantics and specific applications in the various fields of Education, in Communication, in Industry, in Law, in Community Problems and Interracial Relations, etc., this new type of course will be offered again in the summer of 1946.

The *Seminar* will consist of thirty-six hours of class lectures by ALFRED KORZYBSKI, director of the Institute and author of *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics.* These lectures will be scheduled in the afternoons and evenings during the first ten days, and in general will follow the pattern of the intensive seminars previously given at the Institute.

The *Workshop* will be directed by MISS M. KENDIG, educational director of the Institute, assisted by visiting lecturers and consultants in various fields, who will be invited to conduct lecture-discussion periods and assist individuals and small groups in the working out of special problems. Some fifty hours of directed work will be scheduled in the mornings, afternoons, and evenings.

Among the special consultants in the 1946 Summer Seminar-Workshop will be PROFESSOR WILBUR E. MOORE, head of the Department of Speech, Central Michigan College of Education. He will conduct conferences on modern scientific procedures in psychological experimentation and demonstrate the methods and techniques he has developed for the teaching of General Semantics.

Enrollment limited to thirty. Tuition for the three-week Seminar-Workshop will be One Hundred and Twenty-Five Dollars, including the Twenty-Five Dollar enrollment fee, which must accompany the application for enrollment. Some partial scholarships will be available.

Registration forms and other information may be secured from the Educational Director.

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